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OF

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BIRMINGHAM MEDICAL REVIEW.

JULY, 1896.

ORIGINAL COMMUNICATIONS.

ON ARTIFICIAL GLYCOSURIA.

BY J. GIBBS BLAKE, B.A., M.D. LOND.

SINCE 1851, when Leconte published the results of his experiments on the toxic effects of nitrate of uranium, and showed that artificial glycosuria was produced, this fact has been confirmed by several observers.

Still more numerous observers have found that the use of nitrate of uranium has been of service in the treatment of spontaneous glycosuria.

A year and a half ago I noticed some experiments made with phloridzin in which glycosuria was a constant result, and have collected the records of experiments which I have been able to find, with the hope that another valuable remedy might be available in the treatment of diabetes mellitus.

Phloridzin (C_{21} H_{24} O_{10}) is a glucoside extracted from the bark of the stem and root of the apple, pear, plum, and cherry trees. It occurs as minute pinkish white crystals, sparingly soluble in water and readily so in alcohol and ether. It is easily broken up by fermentation or dilute acids into phloretin and a glucose called phlorose.

Von Mering* happened to find that phloridzin produced artificial diabetes, and experimented with it with the view of

* Verhandlung des Congr. für Innere Med. Wiesbaden, 1886, s. 185.

throwing light upon normal sugar formation and upon the unexplained facts of diabetes mellitus. He found that the glucoside phloridzin produces a large amount of sugar in the urine of geese, dogs, and rabbits. He gave a gramme of this substance, by the stomach, to every kilogramme of the weight of the animal. He repeated the experiments, and found that after a few hours sugar always appeared in the urine, to the extent sometimes of 10 per cent. The amount of sugar was independent of the kind of food given, for when the dogs were fed for a week entirely on flesh meat or had only hydrocarbons, the results were nearly the same. Phloridzin produced sugar even when dogs were kept without food till the liver and muscles were free from glycogen. Also when the liver was rendered fatty by phosphorus, the phloridzin produced a large amount of sugar in the urine. Von Mering stated that amyl-nitrite, curara, carbonic oxide, and puncture of the fourth ventricle only produce glycosuria when the liver contains glycogen, and differs in this respect from phloridzin, which produces glycosuria even when the liver is extirpated.

Von Mering also found that urea was increased by giving dogs phloridzin, and concludes that the disintegration of albuminoids is accelerated thereby.

MM. G. Sée and E. Gley* made dogs diabetic by causing them to swallow phloridzin in the proportion of one gramme per kilogramme of their body weight. Under these conditions the urine of the animals, even the first day of the treatment, contained from 10 to 12 per cent. of glucose. The glycosuria ceased with the administration of phloridzin.

The quantity of sugar was found to be the same whether tested by polarisation or by Fehling's solution. Also the glycosuria was produced whether the phloridzin was introduced by the stomach or by intravenous injection.

The same results, as regards the production of sugar, were obtained when the animal was fed on a mixed diet of bread and

* Recherches sur le diabète expérimental. Comptes rendus. cviii., p. 84. 1889.

meat, on meat without fat, or on fat entirely, although there was little less sugar in the two latter cases. "These facts are interesting, because, as all the glycogenic material in an animal to which phloridzin has been given is very rapidly destroyed, as von Mering has demonstrated, they prove that the glucose can be formed in the organism at the expense of the albuminoid materials and fats."

"The animals, in a few days, became very voracious, and if not abundantly fed, rapidly got thin. This glycosuria therefore is accompanied by polyphagia."

Except for the presence of the sugar in the urine its characters were very little altered. The quantity of urea seemed to be slightly diminished.

Dr. Graeser says,* "By administering from 2·5 to 4·8 grammes of phloridzin daily to young dogs (weighing 2700 to 4800 grammes) in the proportion of 1 grm. per kilo. of body weight, there ensues an excretion of sugar lasting from twenty-four to thirty-six hours, and amounting from 5·89 to 12·45 grms. At first I gave the phloridzin in one dose, and later in gramme doses every two or three hours, without any notable difference in the amount of sugar excreted. In three experiments some diarrhœa was set up."

These experiments were undertaken to show the effect of Syzygium Jambulanum in controlling the excretion of sugar in artificial diabetes. Whether the jambul was given before, with, or after the phloridzin it was found to diminish the sugar one-half, and in one case 85·7 per cent.

Moritz and Prausnitz † made experiments on dogs dosed with phloridzin. They say, "phloridzin diabetes is analogous to the severer forms of human diabetes, as it takes place when the diet consists entirely of meat, of hydrocarbons or of fat, and when the dogs are kept without food."

---

* Dr. C. Graeser. *Lancet*, 1889, Vol. ii., p. 902.

† Abstracted in Centralblatt für die Med. Wiss., 1890, p. 771, from Zeitschr. f. Biologie, xxvii., 81.

Cornevin* found that the subcutaneous injection of an alcoholic solution of phloridzin (10 and 20 grms.) under the skin of the thorax of a milch cow produced glycosuria. The urine contained no trace of sugar before the injection of the drug. The sugar in the cow's milk was increased to about double the normal quantity.

Dr. P. A. Levene, under the heading of "Studies in Phloridzin Glycosuria," gives, in the *Journal of Physiology*, vol. xvii., 1894, p. 259, the following interesting proving of the drug.

"The glycosuria that appears after the use of phloridzin raises many points that are of value in elucidating the subject of sugar formation. This drug produces a glycosuria which, as all agree, is due to increased production and not to diminished consumption of sugar within the organism, and has its source in the proteids of the body.

"Further, phloridzin glycosuria upsets the idea of the exclusive or predominating activity of the liver in sugar formation, and has attracted the attention of physiologists to the part played by the kidneys in producing diabetes.

"Phloridzin glycosuria has been produced after extirpation of the liver, and after fatty degeneration of the liver has occurred.

"With a view of determining the part played by the kidneys in the production of phloridzin glycosuria, Levene gives the results of a series of experiments upon the action of phloridzin on dogs. In the greater part of these experiments the results are useless from a pathogenetic point of view, because they consist of ligature of the renal blood vessels and extirpation of the kidneys. Dr. Levene himself quotes Paschutin, a Russian authority who, by a number of experiments, found that a tissue or organ may undergo carbohydrate degeneration after its nutrition has been disturbed. These carbohydrates may be eliminated in the form of sugar."

The comparison which Dr. Levene draws between phloridzin

* Influence de la pilocarpine et de la phloridzine sur la production du sucre dans le lait. Comptes Rendus, T. cxvi., 263.

glycosuria and spontaneous diabetes is interesting, too, as showing the close relationship between the two.

"Summing up the results of the above experiments and comparing them with those found in spontaneous diabetes, we find by experiment with phloridzin, almost a constant decrease of the general amount of the proteids, and a varied relation between the serum albumen and the serum globulin. Serum albumen is usually decreased in quantity, serum globulin increased. These results are important, inasmuch as they tend to show increased decomposition of the proteids in the body; this relation is also observed in fasting. The possibility of fasting being a factor in the above cases is excluded, however, by the fact of food having been given to the animals throughout the experiments except in No. V.

"The ethereal extract containing fat, cholesterin, and lecithin, is in most cases increased, which again agrees with spontaneous diabetes." (Jaksch, Gamgee.)

"As to the substance most essential to diabetes, the sugar, I have, like others, frequently found some decrease of it in the blood. But this is by no means constant; and there are also cases of increase of sugar. (See Exps. III. and IV.) It is also true that the fluctuation of the amount of sugar, in either direction, is in most cases very slight. In my opinion it is difficult to explain it by the mere extraction of the sugar from the blood. Such explanations are all the more improbable since the decrease of sugar in the blood is not proportional to the quantity of sugar eliminated by the urine, as we might have expected, if we accepted the elimination theory."

"On the other hand, we do frequently observe that a relatively higher amount of sugar in the blood is accompanied by its increased elimination in the urine. But increased glycæmia is not a necessary concomitant of spontaneous diabetes. 'Es ist nicht richtig dass die gesteigerte Glykæmie eine nothwendige Bedingung für die Glycosuria ist,' says Seegen. This opinion he bases upon an examination of a considerable number of patients suffering with diabetes whose blood did not contain an

amount of sugar above the normal. Consequently, in this respect, phloridzin glycosuria does not differ from what is observed in diabetes mellitus."

These experiments show that phloridzin very constantly, in different animals and under various conditions, produces a glycosuria which resembles spontaneous diabetes in every respect.

I have used phloridzin in some cases of diabetes mellitus in persons of middle age with decidedly good results. But in the form which occurs in children and the phthisical, in which the nitrate of uranium has failed, I have had no opportunity of testing the power of phloridzin.

RADIOGRAPHY AS AN AID TO DIAGNOSIS.

BY J. HALL-EDWARDS, L.R C.P., F.R.P.S.

DURING the last few weeks so much has been written descriptive of the apparatus, and the various methods of producing radiographs that it is unnecessary for me to enter into further details, any more than to mention the causes, which have brought about the infinitely superior results of to-day, as compared with those of a few weeks back. The most important advance has been made in the construction of the necessary tubes. In the first experiments, when the excitement caused by the discovery was at its highest pitch, every available radiant matter tube was seized upon, and, as the demand was greater than the supply, a different form of tube was used, by each investigator, with varying results. It was soon found, however, that some forms were superior to others, and that the results obtained depended not only upon the degree of vacuum, but upon the shape of, and materials used in the construction of the poles, and upon the glass used in the manufacture of the tubes. Some makes of glass are vastly superior to others, lead glass being nearly

useless. The chief advance in tube manufacture appears to have been the outcome of a suggestion, which originated with Mr. Herbert Jackson, of King's College. In this (so-called) "focus tube" the Cathode pole consists of a concave disc of aluminium, which when in use concentrates the rays upon a square of platinum, attached to the Anode pole. This piece of platinum is fixed at such an angle that it reflects the Cathode rays upon a certain small area of the glass of the tube. In this tube—which is stated to have been designed by Prof. Crookes in 1877—we certainly have an instrument which yields better results, in a shorter space of time, than any previously put upon the market. This form of tube (with small modifications) is now in general use), and it is stated that Prof. Röntgen himself has adopted it.

The question as to whether the term "focus" applied to this special form of tube is correct, is not a matter which can be discussed in a journal devoted to medical science; still I cannot refrain from stating that in my humble opinion it is inaptly applied. The superior results are brought about, in the first place, by the fact that the surface from which the X rays emanate is lessened, hence less distortion is produced; and in the second, that owing to the vacuum being more complete, the tubes can be placed at a greater distance from the objects to be radiographed, hence greater sharpness and better definition are obtained. For medical purposes there is still much to be done by way of improvement. One of the chief drawbacks of the tubes as at present used is that, owing to their shortness, sparks are liable to brush from the terminals and to touch the patients. To overcome this defect I have designed a special tube, which is perfectly insulated for such a length as to render this accident impossible. The tube in question serves its purpose (so-far) very well. This brushing from the terminals is disadvantageous from two points of view. In the first place, it is painful; and in the second, it is liable to make your patient jump to such an extent as to imperil the safety of your tube.

The electrical portion of the necessary apparatus, we are

informed, is capable of little improvement, hence further advances lie to a great extent in the hands of the photographer, whose energies should now be devoted to perfecting his methods so that the best possible results can be obtained. As most of the enthusiasts who have taken the matter in hand are amateurs, and as to the investigations of these we owe the unparalleled progress of the science and art of photography, I cannot but feel that the progress of radiography could not be in better hands.

Considering the fact that during the few weeks which have elapsed since the first news of Röntgen's discovery reached us, the rapid strides made are little less than marvellous. The exposure necessary to give a good negative of the bones of the hand, for instance, has been reduced from sixty minutes to a less number of seconds.

The pictures now produced can in no sense of the word be considered as shadows, for they present a wealth of detail which was in the earlier experiments not anticipated. It has been found possible to pass the rays through every portion of the body; and although (at present) when dealing with the thicker parts the negatives are far from perfect, and compare very unfavourably with those obtained from the extremities, even these are better in many respects, than some of the first published productions from the thinner parts. The chief difficulties at present in the way of producing good negatives of the thicker parts—viz., distortion, and want of detail—arise from our inability to bring the bones in these parts sufficiently near to the sensitive surface to produce sharpness in the image. By the use of photographic films, which can be bandaged upon the limbs, this difficulty is to a small extent obviated, and with the introduction of more perfect tubes it will be overcome, as they will allow of their being used at a greater distance, without its being necessary to give an inordinately lengthy exposure. The distortion, which is most marked when a small apparatus is used, is due to the spread of the X rays caused by the necessity of using the tube in close proximity to the

part to be radiographed. I say necessity, because were the tubes placed at such a distance as to render the image sharp, the exposure would become so lengthy as to render the operation, to say the least, exceedingly irksome to the patient.

Another difficulty, though not an insurmountable one, arises in the giving of a proper interpretation of the results obtained. Radiographs differ from ordinary photographs in that, instead of being surface presentments, they picture all the details in the structure of the object radiographed, greater prominence being given to those contained in that portion of the structure which is placed nearest to the photographic plate. Inasmuch as they give detail in addition to outline, they cannot be considered as shadows, as a shadow represents only the form of a body which intercepts rays of light. That the X rays are not light rays, in the ordinary acceptation of the term, has been amply demonstrated; neither do the terms "transparent" and "opaque" apply to them, for in my belief no substance will stop them, granting that a sufficiently lengthy exposure be given. That some substances retard their passage to a greater extent than others is obvious, or it would be impossible to obtain an image of bone. That bone however is transparent is demonstrated by the fact that a needle, or other foreign body, can be radiographed through it. Going a step further, it can be demonstrated that a needle is transparent by radiographing another body through its substance.

The production of radiographs depends then not upon the fact that some bodies are opaque, whilst others are transparent to the X rays; but upon the demonstratable principle that some substances allow them to pass through more easily and quickly than others. Hence photographic experience and skill play an important part in their production, inasmuch as they enable the operator to judge the exposure to such a nicety as to ensure the obtaining of a required result.

The above-mentioned difficulty of properly interpreting the results obtained will soon disappear with increased experience, and no doubt many new facts will be discovered. Of the many

suggested applications of radiography none bid to equal in benefit those which even at this early stage of investigation are likely to accrue to the surgeon. In the very earliest experiments it was predicted by those who could grasp the full significance of the discovery, that surgery was likely to receive considerable help at its hands, but to none did it occur that such rapid strides would be made in this direction in so short a time. In an article which appeared in the March issue of *The Practitioner*, by Albert Carless, M.S., F.R.C.S., it is stated that Mr. Porter, of University College, "doubts whether it will ever be possible to do much with the bulkier parts of the body, such as the legs above the ankles, and therefore the use of this process in practical surgery must be very limited." This statement is a glaring example of the error of forming an opinion too hastily, for almost before the issue was placed in the hands of its readers, the possibility of radiographing the spinal column, and through the skull, had been practically demonstrated, whilst knee, elbow, and shoulder joints are perfectly rendered.

Its usefulness to the surgeon has daily increased since the appearance of this article, and at the present moment all who have sought its aid in the diagnosis of suitable cases, and who have taken the trouble to satisfy themselves of the progress made, speak in no measured terms of its future possibilities and usefulness. The discovery, in any part of the body, of a foreign substance whose density to the rays is greater than that of bone, is a matter of absolute certainty. The number of needles, bullets, fragments of metal, and portions of glass which have already been located is truly astonishing; and we cannot help wondering how, before Röntgen's discovery, so many persons managed to exist with such a heterogeneous collection of unconsidered trifles lodged in their tissues. The location of foreign bodies, although at present the most certain of the applications of radiography, is by no means the most important. We are enabled to locate with great accuracy the extent of injury caused by many diseases of bone; and in many instances

the very commencement of bone lesions is capable of demonstration. In diagnosing the actual state of affairs in fractures, radiography will soòner or later displace all other methods, for not only is it quite unnecessary to pull about the injured limb, which, to say the least, is an exceedingly painful process; but, no matter what amount of swelling is present, the photograph will show with absolute certainty the position of the fracture, and the amount of displacement. The same remarks apply equally to dislocations; and, moreover, in both instances the position of the parts can be ascertained after the splints have been applied, granting that the splint used is not a metal one.

In crushed limbs, where the injury to the soft parts is so extensive as to render it difficult to discover the state of the bones by the ordinary methods, radiography will be found of great service.

In tubercular osteitis, the limits of the disease can in most cases be clearly defined; and in suspected osteo-sarcoma, a doubtful diagnosis can often be made absolute.

As far as bone lesions are concerned, the old methods of diagnosis will have to be replaced by radiography, and its extended application cannot fail to stamp out the work of the "bone-setter."

In veterinary surgery it will undoubtedly prove very useful, many vexed points being capable of settlement.

I need have little hesitation in saying that Röntgen's discovery constitutes one of the most important advances (from a surgical point of view) of the century, and in predicting that increased knowledge is certain to extend the sphere of its usefulness.

I will now quote a few cases which have come under my personal notice, upon which radiography has thrown considerable light, and has materially aided the diagnosis.

Osteo-sarcoma of Humerus.—This case was brought to me by Dr. Winter, of Wolverhampton. Y. Z, a man of 26 years of age, whilst employed at his usual work, felt a sudden and acute

pain in his arm. This continued during the whole afternoon, but did not hinder him at his work. Whilst walking home he passed some waste ground, upon which the not uncommon game of throwing at cocoa-nuts was being indulged in. Thinking that perhaps a little exercise would tend to remove the pain, he took up a ball, and whilst in the act of throwing it, his arm fractured at the junction of the middle and upper thirds. He went straight to the hospital, where the fracture was reduced and was put up in splints. After three weeks a plaster of paris case was applied; and some six or eight weeks later, the arm appearing to be perfectly well, he resumed his work. After a short interval he experienced some pain, and a hard round swelling appeared round the humerus at the point of fracture. This continued to increase in size, and finding it impossible to work, he again applied to the hospital. The history of the case, together with the character of the enlargement, naturally suggested the presence of sarcoma; as, however, some diversity of opinion existed, the man was sent to me. The radiograph cleared up two important points. In the first place, it showed that no callus had been thrown out; and in the second, that the bone in the immediate region of the fracture was soft, and allowed the X rays to pass through with great ease. The diagnosis now being made certain, the limb was amputated, and subsequently the state of affairs pictured in the radiograph was verified.

Fracture of Metacarpal Bone by Bullet.—(Fig. I) In this case, which was brought under my notice by Dr. S. H. Agar, of Henley-in-Arden, a young man whilst handling a revolver accidentally shot himself in the palm of the hand. The radiograph, in addition to showing the exact position of the bullet, proved the existence of a fracture of the metacarpal bone, which had been previously overlooked on account of the amount of swelling which ensued. The bullet was removed with the greatest ease by Mr. Gilbert Barling, F.R.C.S., who acknowledged the help the radiograph had rendered him.

Fig. I.

Tubercular Osteitis of Metacarpal Bone.—(Fig. II.) The boy whose hand is here reproduced was under the care of Mr. Gilbert Barling, F.R.C.S., at the General Hospital. The radiograph shows plainly the diseased area; the inflamed portion of bone having a distinctly different appearance from the normal. In cases of this kind, where the circumscribed diseased area can be mapped out, the pictures must prove exceedingly useful when any operative procedure is thought advisable.

Fig. II.

Needle in Forearm.—Case under the care of Mr. Frank Marsh, F.R.C.S., at the Queen's Hospital. Four years previously this woman whilst scouring the floor broke a needle into her arm just above the wrist. Lately she had complained of great pain in the elbow, and as it was quite possible that the needle had worked into this region, she was sent to me. A radiograph of the elbow failed to discover its whereabouts, but one of the wrist showed it plainly in the exact position in which it was stated to have entered. The interesting part of the case consisted in the facts that in the first place the needle had entered the bone, and

in the second, that it was placed in such a position that it pressed upon the ulnar nerve, thus accounting for the pain in the elbow. In this case the position of the needle was quite unknown, and furthermore it could not be detected even when its position had been clearly indicated by the radiograph.

Fragment of Steel in Wrist.—In this case the man whilst forging was struck at the side of the wrist by a chip from a hammer. The probe failed to locate the presence of any foreign body. The radiograph however showed the exact position and shape of a piece of steel. This was removed by Mr. George Heaton, F.R.C.S., at the General Hospital. The fragment was found in the position indicated, lying beneath the tendons immediately over the semilunar bone; and after extraction its shape was found to exactly correspond with the image pictured in the radiograph.

Necrosis of lower end of Radius.—In this case the softened and vascular bone tissue is distinctly visible, and the periosteum appears to be infiltrated with calcareous material. The position from which a small piece of dead bone has been removed is clearly indicated.

I might quote a large number of cases where positive and negative evidence, of great value, has been obtained, but the above are sufficient to prove that the application of radiography to surgery is of some value.

Many of the most interesting results obtained through the thicker parts of the body, whilst amply sufficient for purposes of diagnosis, are, from a photographic point of view, not sufficiently good to stand reproduction. However, the two simple cases here illustrated clearly point to the fact that the surgical applications of radiography are not so restricted as it was at first imagined they would be, and that its future possibilities are great. I would that I could give you more illustrations, as they would undoubtedly carry more weight than anything I can write; but, unfortunately, the cost is too great to allow of it.

The most important question I shall be asked by the readers

of this article is—Will it ever be possible to differentiate the soft structures and to localise growths other than those of bone? Judging from certain results, accidentally obtained, I am almost persuaded to answer in the affirmative; at any rate, I am certain that we have arrived at present only in the borderland of the vast field open to us, and that experience, and improved apparatus, will greatly enlarge the scope of the application of radiography. It is impossible to predict with any degree of certainty its ultimate usefulness. Improvements in technical details are sure to produce more serviceable results, and that these will come we need have little fear. Further advances lie to a great extent in the hands of the physicist and photographer, and discoveries in directions which do not come within the scope of practical surgery may, ultimately, prove of the greatest value to the surgical radiographer.

The principles involved in the action of the X rays upon the sensitive surface of a photographic plate are so obscure, and ill-understood, that considerable difficulty stands in the way of very rapid progress in this direction. The various theories put forward to account for the phenomena are too lengthy for discussion here, and, moreover, they do not come within the province of this journal.

Apart from actual photography, by means of the X rays another method of diagnosis is placed in the hands of the surgeon through their instrumentality. I refer to the use of the fluorescent screen. This consists of a wooden frame covered with some thin but opaque medium (black paper, cardboard, aluminium, celluloid, vulcanite, etc.), one surface of which is dusted over with some fluorescent substance, preferably potassium platino-cyanide. When such a screen is brought near a Crooke's tube in action, the fluorescent surface being turned towards the observer, a bright coloured light is emitted from its surface, and if a limb be placed between it and the Crooke's tube, the bones become plainly visible. The tube itself should be encased in black paper, so as to exclude the fluorescent flicker from the surface of the glass; all other extra-

neous light must also be excluded from the room. By the aid of the fluorescent screen we are enabled to actually see through the body, and to localise the presence of foreign substances. Although in my opinion the usefulness of the fluoroscope bears no comparison with radiography, there are occasions when it is likely to prove exceedingly useful. After a considerable number of experiments with fluorescent screens, I have failed to see anything approaching the amount of detail which is shown in a radiograph, and considerable improvement will have to be made in their construction before in most cases they can satisfactorily compete with the photographic plate.

In the case of a foreign body being lodged in the trachea or gullet, the screen would undoubtedly prove of great service, not only in showing its position, but the progress and position of the instruments used in extracting it could be watched during the operation.

The question of the relative transparency of the various tissues of the body is one that cannot be lightly passed over, inasmuch as the future possibility of radiographing soft growths depends upon it. That the soft structures differ from one another in their power of obstructing the rays we have ample evidence, many of the more bulky ligaments and tendons being plainly visible in the photographs. It is possible that improvements in various parts of the apparatus may enable us to make differentiations which at present are impossible. Cartilage and fat appear to be the most transparent tissues, and it has been proved that the cortex of the kidney allows the rays to pass much more easily than the pyramids. The length of the exposure given to the plate has much to do with the rendering of differences in the tissues, and nothing but experience and practice will enable us to obtain a proper command of the forces at our disposal. This point is clearly exemplified in the fact, that writing and printing do not as a rule show up; whereas if proper precautions be taken it is quite possible to radiograph the writing upon a sheet of paper, through an envelope.

The proper interpretation of radiographs is not an easy

matter and much experience is required to enable one to do this satisfactorily. In the detection of foreign bodies the position, owing to the direction in which the rays have passed, is placed in the most unfavourable. This is a matter of considerable difficulty in a large number of cases, to judge with any degree of approximate accuracy, the depth at which the body lies. In some cases it is difficult to decide on which side of the limb, front or back, the body is situated. This question, and indeed the exact position, can frequently be proved by radiographing the limb from two aspects. Given a needle in the foot of the boy, for instance: a radiograph taken right through the foot being placed above the foot and the slide resting upon the plate, will prove its position in one direction only. To decide its exact locality it is necessary to take a second picture, the foot being placed sideways upon the plate. The position of a foreign body in the hand can often be accurately judged by radiographing from both sides and comparing the sharpness of the two images. The nearer a body is to the plate, the sharper its image will appear.

An extended investigation with the object of ascertaining the differences in appearance of various pathological specimens, the exact diagnosis of which has been confirmed, cannot fail to add much to our knowledge, and will render us better able to judge the condition of things in the living body. It was at one time thought that the **X** rays might differentiate between living and dead tissues, but this has been proved to be incorrect, as they are both equally transparent.

As an example of the difficulty sometimes experienced, I, a few weeks back, radiographed a case of tubercular disease of the elbow-joint in a child. The print showed all round the joint a confused mass of dark patches, which were evidently much more opaque to the **X** rays than the bone itself. I was much puzzled to account for this curious appearance until I learned that the disease had been treated with injections of iodoform emulsion. On experimenting, I found iodoform to be exceedingly opaque, a long exposure being necessary to get

the rays through even a thin layer. The knowledge of this fact may prove very useful. The blood vessels of pathological specimens, for instance, can be filled with emulsion, when a radiograph of their ramifications can be secured. Again, given a sinus the exact course of which we wish to ascertain, it would, in some cases, be an easy matter to fill it with some opaque material prior to taking a radiograph; and many other conditions are sure to confront the surgeon in which such injections may render much assistance.

With improved tubes I see no reason why we should not be able to diagnose stone in the kidney, indeed, granting that the stone is a large one, there would be little difficulty with a long exposure (30 or 40 minutes) in doing so now. A stone in the bladder would present greater difficulties on account of the thickness of the bones of the pelvis, but even this might be overcome in the full bladder by so placing the patient that the stone would occupy a position free from bony surroundings. The diagnosis of stone in the gall-bladder is indeed almost impossible, from the fact that cholesterine is an exceedingly transparent substance. The possibility of radiographing the brain is an exceedingly remote one, as not only is brain substance very transparent to the **X** rays, but the bony frame by which it is surrounded is comparatively dense. The position however of a bony tumour could (under certain conditions) be made manifest.

It is exceedingly doubtful if the presence of a sarcoma in the soft parts could (at present) be diagnosed, although in a pathological specimen I have succeeded in detecting a slight difference in the transparency of such a growth compared with that of the surrounding tissues; it is highly possible however that a fibrous tumour (on account of its greater density) could be made visible.

Glass, earthenware, and china are to a greater or lesser extent opaque to the **X** rays, hence their presence can be detected; splinters of wood, on the other hand, are so transparent that they cannot be detected with any degree of certainty.

So many erroneous statements have appeared, both in the lay

and scientific press, that I feel it my duty to contradict such as I have proved to be incorrect. It has been stated that the X rays have the power of killing the hair, and a case has been recorded in which a round bare patch appeared upon the head of a subject who seven weeks previously had been subjected to the influence of the rays. I have radiographed through the heads of several patients and so far no such effect has been produced. Again, I have (for experimental purposes) radiographed my own hands dozens of times, and I fail to see any difference in the growth of hair. It has again been said that the reason the eye cannot perceive the rays, is due to the fact that the lens is opaque to them. I find the lens to be very transparent; indeed much more so than the sclerotic coat. That the X rays kill bacteria I think is more than doubtful; indeed one investigator states that after submitting twelve varieties to an hour's exposure he found them more lively than ever. Many other rash and erroneous statements have been made and repeated, but no others which touch upon the medical or surgical applications occur to me.

Some time since I had the pleasure (through the instrumentality of this Journal) of advocating the claims of photography as a hand-maid to the sciences of medicine and surgery, and now that Röntgen's discovery has widened the scope of its application, I can only emphasise the remarks I then made, and shall trust that our surgeons will not be slow in recognising the fact that a photographic record of the cases which present themselves at our large hospitals, is as much a necessity, as the taking of notes. In the photographic plate—which has been called by a French astronomer "the retina of science"—we have a means of obtaining accurate records, which, had they always been kept, would have settled many a vexed point, and would have provided for all a means of gaining knowledge; of inestimable value.

That every large hospital will sooner or later have to be provided with the necessary apparatus for obtaining radiographs, is certain; for as our knowledge of the properties of the X rays increases, their usefulness as a means of diagnosis is certain to

extend. To the Army surgeon in the field, radiography must prove of the greatest use, not only from a humanitarian point of view, but from the fact that its practical application would save much time, and the location of bullets would be made a matter of absolute certainty.

It is perhaps necessary for me to explain why I use the term "Radiography" in preference to that of "Skiagraphy," which has been generally adopted by the medical press. In the first place, most of the scientific journals and all the photographic ones have adopted "Radiography;" in the second, as I have before pointed out, the pictures produced are not, strictly speaking, shadows; in the third, the term "Radiography" conveys no theory other than the generally accepted one, that the photographs are produced by radiations; and lastly, even in the face of its being a mongrel word, it is more scientific and euphonious, and far more easy to remember, than its more classical but incorrect competitor.

[The blocks from which the illustrations have been printed, were made from untouched prints, untouched negatives; and although they have lost much detail in the process of reproduction, they are purely photographic, and free from hand work.]

A REVIEW OF THE ANTITOXIN TREATMENT OF DIPHTHERIA.

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My own limited opportunities of observing the effects of the antitoxin treatment of diphtheria oblige me to fall back upon the published statistics for material on which to base an opinion as to its efficacy; a course which, owing to the large number of figures available and their possible fallacies, is by no means easy. The following attempt to review the question as it at

present stands may perhaps be of interest to those who, like myself, have hitherto felt in some doubt as to their position with reference to the matter. It contains also, with the permission of the Medical Staff, an analysis of the cases treated with antitoxin at the Birmingham General Hospital.

In order to give a general idea of the opinions and statistics published almost up to the present time, I give the following short abstract of a very careful summary of last year's literature on the subject which appears in the American Year-Book of Medicine and Surgery, recently published under the editorship of Dr. George M. Gould. (1) White, of New York, reports a series of 20 cases under five years of age treated in the Willard Parker Hospital of that city, with a mortality of 25 per cent.; and (2) Foster, of Washington, tabulates the cases reported in the various journals, with the result that in 2740 cases so treated, the mortality was only 18·54 per cent.; whilst of 4445 cases not treated with antitoxin, 45·36 per cent. died. Details of these cases are not given. (3) M. Roux reports 448 cases treated at the Hôpital des Enfants Malades of Paris, with a mortality of 24·33 per cent.; compared with a mortality of 51·71 per cent. in a series of 3971 cases treated in former years at the same hospital. It is stated that during the very same period from which these statistics are quoted, in the Hôpital Trousseau, where at that time the antitoxin treatment was not adopted, the mortality was no less than 60 per cent. (4) Moisard reports 231 cases treated by antitoxin during the months of October and November, 1894, at the Hôpital Trousseau, with a mortality of 14·7 per cent. (5) Von Ranke used Behring's serum in the treatment of eight cases in 1893, with the result that seven died from lobular pneumonia. He afterwards treated 95 cases in the same way, with a mortality of 22 per cent. In 54 of these cases there were symptoms of laryngeal stenosis, 37 of which were treated by intubation, with a mortality of 29·7 per cent. (6) Ritter treated 26 cases, with a mortality of 15·3 per cent. (7) Heubner, from a comparison of statistics, came to the conclusion that the antitoxin exercised a marked though

not specific influence, and that the results were on the whole favourable. (8) Kossel reports 117 cases, with a mortality of 11·1 per cent., including 23 tracheotomies, mortality 52·2 per cent. He believes that the antitoxin diminishes the tendency to involvement of the larynx, and also states that paralysis was observed in a smaller proportion than would otherwise have probably been the case. He concludes that with early cases and a sufficient dose of the serum, recovery is certain to take place. (9) Körte reports a mortality of 33·3 per cent. in 121 patients, almost exclusively below ten years of age; and makes the striking observation that not only did the mortality formerly amount to 50 per cent., but that 106 cases were treated during a temporary failure in the supply of the serum, when the mortality rose again to 53 per cent. (10) From August, 1890, to the end of 1893, Katz collected 1081 cases of diphtheria treated at the K. und K. Friedrich Kinderkrankenhaus at Berlin, with a mortality of 38·9 per cent.; and from January 1st to March 14th, 1894, 86 cases, mortality 41·8. From March 14th to June 20th of the same year 128 cases were treated with antitoxin, when the mortality fell to 13·2 per cent.; and he expresses the opinion that many of these were influenced in a most favourable manner by the treatment. (11) Bokai reports 120 cases under twelve years of age, with a death-rate of 25·8 per cent., at Buda-Pesth; and (12) Widerhofer 100 cases, with a death rate of 24 per cent., "a reduction of more than one-half." The last-mentioned writer strongly supports the usefulness of the treatment if begun within the first three days. (13) Schroeder obtained a mortality of only 12·7 per cent. in 63 cases, 31 needing tracheotomy, of which only 9·67 per cent. died. (14) Finally, Washbourn, Goodall, and Card report 80 cases, of which 21·3 per cent. died; and compare these results with a mortality of 38·8 per cent. under former methods of treatment. On the other hand, a few definitely unfavourable opinions are quoted.

To these reports, which I have so far taken entirely from the source mentioned, I add a few others which have been published more recently.

The most elaborate English compilation which has yet appeared is to be found in the report of the Medical Superintendents of the Metropolitan Asylums Board Hospitals, published a few months ago. From this report it appears that in 1894, before the use of antitoxin, the number of cases treated was 3042, and the deaths 902, or 29·6 per cent. The cases treated with antitoxin in 1895 numbered 2182, and the deaths 615, or 28·1 per cent. But, it is contended, from these figures a large proportion of the less severe cases are excluded (those cases only being injected in which the symptoms were severe on admission); so that to obtain a fair comparison, *all* the cases for 1895 must be taken. We then find that the number of cases was 3529, with 796 deaths, or 22·5 per cent., as compared with a mortality of 29·6 per cent. in 1894. It therefore appears that the number of cases admitted which were too mild on admission to need the antitoxin treatment numbered no fewer than 1347, or more than one-third of the total number.* Whether or no these cases be included, however, the mortality for each age period shows a very distinct diminution. Moreover, the percentage of cases which required tracheotomy fell from 56 to 45·3; whilst the mortality amongst the patients tracheotomised fell from 70·4 to 49·4 per cent., all cases being included.

Again, a careful analysis of the results of the antitoxin treatment as observed in the City of Glasgow Fever Hospital, Belvidere, has been prepared by Dr. Ernest L. Marsh, and published in the *Glasgow Medical Journal* for May, 1896. For the details of this analysis reference must be made to the journal itself; but the outcome of it is briefly as follows:— From 1871 to 1894 inclusive, 790 cases of diphtheria were treated by the older methods, with a mortality of 40·4 per cent. During the year 1895, 137 cases were treated with antitoxin, with a mortality of 18·2 per cent.; but Dr. Marsh has apparently overlooked the fact that from this series of cases four

* The comparatively slight severity of these cases throughout is shown by the fact that the mortality amounted to 13·4 per cent. only.

patients who were admitted in a moribund condition are excluded, a course which is clearly unfair in comparing them with the earlier series in which apparently no such allowance has been made. If, however, we include these four cases, the mortality still only amounts to 21·2 per cent. During the same period 38 cases were considered as being too mild to need the injections; if we include these cases, the total mortality for the year 1895 amounted to 16·2 per cent. The percentage of deaths for each age period shows a marked diminution; and a study of the tracheotomy cases in these two periods respectively shows a drop from a percentage mortality of 79·4 to one of 34·5. That the epidemic of 1895 was not of an unusually mild description is moreover shown by the fact that the mortality of cases treated at home during the same period presents the average of the two preceding years, an average which, it is to be noted, is steadily much below that of the hospital except in the year 1895.

Although the local cases which I have been able to collect are but few in number, it may nevertheless be of interest to present some analysis of them; and I have therefore extracted from the reports of the Birmingham General Hospital statistics as to the results of the treatment as there carried out. From October 11th, 1894, to November, 1895—at which time the practice of the hospital as to the admission of diphtheria cases underwent a material change—I find that 63 cases were treated with antitoxin; from these I subtract four in which the patients died within twenty-four hours of admission, leaving 59 cases for analysis. Of this number 20 died, giving a total mortality of 33·8 per cent. The arrangement of the cases and deaths, as far as age is concerned, is given in the following table:—

TABLE A.

Age.	Cases.	Deaths.	Percentage Mortality.
Under 1	1	1	100
1–2	6	5	83·3
2–3	7	3	42·8
3–4	4	1	25

Age.	Cases.	Deaths.	Percentage Mortality.
4–5	7	5	71·4
5–10	15	4	26·3
10–15	10	0	0
15–20	3	1	33·3
20–30	5	0	0
Over 30	1	0	0

During the same period 9 cases were, for some reason which I do not know, treated without antitoxin. Five of these occurred in patients under ten years of age—namely, 1 under two years of age, 2 between three and four, and 2 between five and ten. The mortality for these ages respectively is 100, 100, and 50 per cent.

During the five preceding years 48 cases, which can apparently be certainly diagnosed as diphtheritic, were treated by the ordinary methods. Two of these died within twenty-four hours of admission, and must be deducted in order to make the series comparable with that of the antitoxin cases; the number then becomes 46. Of these 29 died, giving a mortality of 63 per cent. During the same five years 18 cases were also admitted in which the diagnosis is more doubtful, being cases generally of laryngitis with dyspnœa, which all recovered, and which, in all probability, include many bacteriological cases of diphtheria and some cases of non-specific laryngitis. If they be included, the total mortality amounted to 45·3 per cent. only. In order, however, to avoid as far as possible the difficulty which is introduced by the doubt as to the nature of so considerable a proportion of the cases, and to show in addition the effect which this point has upon the results, I have throughout my statistics kept the two sets of figures—which are obtained by the respective exclusion and inclusion of these doubtful cases—separate from one another. In the following table I give first the incidence of the cases and mortality in the certain cases alone, and in separate columns the cases and results obtained by adding all the cases, certain and uncertain, together. The actual truth probably lies between the two sets of figures.

TABLE B.

Age.	Cases.	Deaths.	Percentage Mortality.	Total Cases.	Percentage Mortality.
Under 1	2	2	100	2	100
1–2	10	9	90	13	69·2
2–3	7	5	71·4	8	62·5
3–4	8	6	75	11	54·5
4–5	4	2	50	6	33·3
5–10	12	5	41·7	19	26·3
10–15	1	0	0	3	0
15–20	1	0	0	1	0
20–30	0	0	0	0	0
Over 30	1	0	0	1	0

During the year 1895, 22 cases treated with antitoxin (or 37·3 per cent.) were tracheotomised, with 13 deaths, or a mortality of 59·1 per cent. In the earlier series of cases tracheotomy was performed in 34—that is, 73·9 per cent. of the certain cases, or 53·1 per cent. of the number obtained by including those in which the diagnosis was more doubtful. Of these 25 died, giving a mortality of 75 per cent. The following table shows the distribution as regards the age of the patients.

TABLE C.

TRACHEOTOMIES.

Age.	Antitoxin Cases.	Percentage Mortality.	No Antitoxin.	Percentage Mortality.
Under 1	1	100	2	100
1–2	4	100	9	88·8
2–3	4	25	4	100
3·4	3	33·3	7	71·4
4–5	5	60	3	66·6
5·10	4	50	9	44·4
10 15	0	0	0	
15 20	1	100	0	

I add one more table, which gives, as far as I am able, the

day of the disease on which the cases were admitted, together with the corresponding death-rate. In 16 of the antitoxin cases, however, and 27 of the earlier cases, the notes are inconclusive on this point. The figures in brackets give the percentage mortality obtained by including the doubtful cases.

TABLE D.

Day.	Antitoxin Cases.	Percentage Mortality.	No Antitoxin.	Percentage Mortality.
1	4	50	2	100 [33·3]
2	11	0	4	75 [37·5]
3	10	30	5	80
4	8	50	4	50
5	4	50	0	0
6	3	66·6	0	0
7 & over	3	100	4	25

In nearly all the cases the injection was given within a few hours of admission, and in only 10 was it repeated, in 6 of which the patients died. Of 4 cases injected on the second day after admission, 3 recovered and 1 died; of 3 treated on the third day, 2 died; and 1 patient injected on the fourth day recovered. In 24 cases the diagnosis was, as far as can be ascertained, made on clinical grounds only; but in all these there certainly appeared to be ample reason for the assumption. The remaining 35 cases gave bacteriological evidence of their nature.

In attempting the very difficult task of reviewing these statistics and of forming an opinion as to their real meaning, account must be taken of certain considerations. In dealing with so variable a disease as diphtheria, it appears to me that something like the following conditions should be demanded if we are to accept the favourable conclusions which at first sight seem to arise from a study of the published figures. (1) The epidemics compared must be of approximately the same degree of severity; or the cases must be spread over a sufficient length of time, or be taken from a sufficient number of sources,

to practically eliminate the danger of the inclusion of epidemics of unusual mildness. (2 & 3) The incidence as far as age is concerned, and the period of the disease at which treatment was commenced, must similarly be approximately alike in the series compared. (4) The cases must be selected upon a uniform plan. (5) There must be a general agreement in the results, or at least no very marked exceptions to the general tendency of the reports. I need scarcely add that these reports must show evidence of a critical tendency on the part of the writers, such as is not always forthcoming in dealing with a new method of treating disease.

(1) In reviewing the statistics of the antitoxin treatment of diphtheria from these points of view, it may at once be admitted that the numbers dealt with are so large and come from such widely different sources, and also that in some cases at any rate (as, for example, in the statistics of the Glasgow Hospital) such good evidence is given that the epidemic examined was of a usual degree of severity, that the first condition may be said to be fully satisfied.

(2) With regard to the second condition, I have referred to those of the papers (eleven altogether) to which I have been able to obtain access, and find that, although most of them give full details as to the ages of those patients who were treated with the serum, the ages in the cases not so treated are given only in the Glasgow Hospital and the Metropolitan Asylums Reports.*

This failure to state the ages of the patients not treated with antitoxin introduces an element of great weakness into many of the reports. I may take the Birmingham statistics as affording a good example of the fallacy which may easily be thus involved. The bare statement of fact—comparable to that which is made in the reports to which I am now referring—is that the mortality in the cases not treated with antitoxin was 63 per cent. (45·3 if

* Several of the reports deal with cases treated at Children's Hospitals, where the patients were probably all under 10 or 12 years of age; but no further details are given.

the uncertain cases be included), whilst with antitoxin it fell to 33·8 per cent. The saving of life would therefore appear to be from 11 to 29 per cent., if no further examination of the figures were made. But a careful analysis of the two series brings these important facts to light (the figures in brackets have the same signification as in Table D.) :—

Percentage of cases under 5 years of age,					with antitoxin	42·4
,,	,,	,,	,,	,,	without ,,	67·4 [62·5]
,,	,,	,,	10	,,	with ,,	67·8
,,	,,	,,	,,	,,	without ,,	93·5 [92·2]
,,	,,	over	10	,,	with ,,	32·2
,,	,,	,,	,,	,,	without ,,	6·5 [7·8]

Now it is obvious from these figures that, since the mortality of diphtheria is much greater in the earlier than in the later years of life, the antitoxin cases (in which the proportion under 5 and 10 years of age is so much less, and over 10 years so much greater, than in those with which they are compared) have a very great advantage. A comparison, therefore, can at most only be made between the respective mortality of the cases under 10 years of age (a course which in the present instance still favours those treated with antitoxin owing to the smaller proportion of patients under 5 years of age). I then find that the percentage mortality of the antitoxin cases amounted to 47·5, as compared with a percentage of 67·4 (or 49·2 if the doubtful cases be included) in those treated in former years—a very material change in the aspect of the figures, if it be remembered that at least a fair proportion of the doubtful cases ought probably to be included.

There is, however, yet another correction which has to be made. From the above tables I find that of the antitoxin cases under 10 years of age 52·5 per cent. were tracheotomised, whilst of the cases treated without antitoxin, 79·1 or 57·6 per cent. (according as the doubtful cases are or are not excluded) underwent tracheotomy. Considering the disastrous influence of tracheotomy in itself on the death-rate, it is obvious again

that the antitoxin cases have a great advantage over their antagonists as far as mere tendency to death is concerned. It will of course be contended in reply that the very fact that a much smaller proportion of cases required tracheotomy under the new treatment is, of itself, a strong argument in its favour. Whether that be so or not, the actual fact is still quite sufficient to account for a large part of the diminution in the mortality in the cases which I am now considering (even allowing for the diminished death-rate of the tracheotomy cases themselves) and it therefore seems as though that diminution must be put down, if entirely to antitoxin, at least as much to its influence in diminishing the tendency to laryngeal obstruction as to its effect on the toxæmia of the disease.

Is it, however, correct to attribute the drop in the proportion of cases tracheotomised to the use of antitoxin at all? It is true that in many of the foreign reports such a drop in the proportion of the total number of cases is noted, and is moreover referred to the action of the remedy; but since tracheotomy is an accident which is comparatively uncommon in patients over 5 years of age, and very unusual over 10, it is at most the proportion of cases tracheotomised under 10 or 5 years of age which must be compared, and not the proportion of the total number of cases, all ages included. As no details are given in most of these reports by which such a calculation can be made, I do not think that the inference drawn from them can be accepted without question. Further, I am the more unwilling to believe that the antitoxin treatment was responsible for the smaller number of cases tracheotomised in the Birmingham statistics in that the reports of the Metropolitan and Glasgow Hospitals show no such material diminution. Thus, the percentage of patients under 10 years of age who underwent tracheotomy in the Metropolitan hospitals fell from 11·1 to 9·3 only—a remarkably low rate in either case; whilst the figures of the Glasgow Hospital show a similarly slight diminution. I should therefore be inclined to attribute the drop in my statistics rather to the slighter severity of the cases admitted, a point to which I shall

have to refer again shortly. This belief is supported by the fact that of the antitoxin cases under 10 years of age tracheotomised in the General Hospital, in 28·5 per cent. the operation did not take place until twenty-four hours or more after admission, and that in 61·9 per cent. only was it performed immediately after or within a few hours of admission, whilst of the cases tracheotomised not treated with antitoxin, no less than 79·4 per cent. were operated on directly or within a few hours of their entrance into the hospital, whilst only 14·7 per cent. were able to wait twenty-four hours without operation. These facts show, I think, both the greater severity of the earlier series of cases and, in this instance at all events, the comparative powerlessness of antitoxin to avert the occurrence of laryngeal obstruction.

It is thus evident that the bare statement of the death-rate in the two series of the Birmingham cases gives an utterly fallacious result; for an allowance for the different incidence of the cases as regards age at once raises the comparable mortality of the antitoxin cases from 33·9 to 47·5 per cent., without very materially altering that of their opponents, whilst a further allowance for the large proportion of tracheotomies included in the earlier cases would reduce their death-rate so materially as probably to bring the two series within a small distance of one another.

A careful study of the report of the Metropolitan Asylums Board shows, however, that such criticisms are entirely inapplicable to the statistics therein contained; for the relative distribution of the cases as to age, and the proportion of cases tracheotomised under 10 years of age, are curiously alike throughout the two series. Nevertheless, it must be remembered that in these figures the improvement in the mortality is comparatively small, and is less than in most of the other reports quoted. The Glasgow statistics, again, cannot be explained by any such method of investigation; for although the percentage of cases under 10 years of age treated during the antitoxin period is slightly lower than the corresponding

percentage in the cases not so treated (77·9 against 82·7), this fact is more than compensated by the larger proportion of cases admitted under 4 years of age. Moreover, the percentage of cases tracheotomised is nearly the same in the two series—namely, 19·6, and 22 respectively. As far as these points are concerned, therefore, the statistics of both of the Metropolitan and the Glasgow hospitals will bear the fullest investigation.

(3) With regard to the period of the disease at which the cases came under treatment, I find that, with the exception of the Metropolitan Asylums report and that of the Glasgow Hospital, the papers to which I have referred are silent on the point; whilst even the Glasgow report gives the day of admission of the antitoxin cases only. The Metropolitan Asylums Board report gives full details on this point with regard to both series of cases; and they are in this respect again closely comparable. It appears to me that this point is one of supreme importance, and that unless it is known that the cases of the series compared came under treatment at approximately similar periods, the statistics must necessarily lose much of their force. My own figures as to this point are too incomplete to be of any value.

(4) It is the fourth condition mentioned above, however, on which those who are sceptical as to the benefits of the treatment will lay most stress; and I am bound to admit that it introduces a question of great difficulty into the consideration. It is a matter much to be regretted that the practice of examining for a bacteriological proof of the nature of the cases treated was introduced almost—and in the case of many hospitals quite—simultaneously with the antitoxin treatment itself; for undoubtedly this practice has led to the inclusion in the lists of cases of diphtheria, and the admission into hospitals, of many which would under former conditions have been placed under a much less serious heading, and treated entirely in the out-patient departments. Thus, I have good reason to know that the practice as regards the admission of these cases into the Birmingham General Hospital underwent, to some extent, a

change in this direction, some at least of the cases admitted being such as would not formerly have been diagnosed as diphtheria, nor admitted as in-patients at all. I do not mean to imply that these cases would constitute more than a small minority of the total number; nevertheless, the fact must certainly be allowed some weight in forming a judgment. With regard to the other reports quoted, most of them make some reference to the type of cases admitted, though none, so far as I have seen, allude to this particular difficulty. Thus, in the report of the Glasgow Hospital it is expressly stated that 38 cases were of such mild nature as not to require treatment with antitoxin at all;* and in the Metropolitan Asylums report these milder cases (1347 in number) have to be brought into the calculation in order to make out any material reduction in the mortality. I presume from this latter fact that the writers do not consider that a larger number of mild cases were admitted than was formerly the case; but it is nevertheless a striking fact that in 1895—that is, after the introduction of the antitoxin treatment—nearly 500 more cases were treated in the Metropolitan hospitals than in the preceding year, and that more than one-third of the total number of cases were of such slight severity as not to require injection.† M. Roux gives a valuable piece of information on the point, for he states that in the Hôpital des Enfants Malades the habit of bacteriological investigation was introduced at an earlier period than the antitoxin treatment, and that the mortality at that time still amounted to 50 per cent., as against 24·5 after its introduction. No details of these cases, however, are given. Again, in Katz's collection of 128 cases, in which the mortality was 13·2 per

* It must, however, be admitted that the total number of cases treated was smaller in 1895 than in 1894.

† It has been suggested to me that some evidence bearing on this point might be obtained by comparing the total number of cases of diphtheria notified in London in the years 1894 and 1895 respectively. Dr. Shirley Murphy has kindly placed at my disposal full information as to this point as far as it is at present forthcoming; but the statistics for 1895 are not yet complete.

cent., no less than 47 are stated to have been of slight severity; and Körte's 121 cases include 31 of mild character, of which 5 were not injected at all. On the other hand, Von Ranke maintains that in his cases the improvement in the mortality cannot be explained by their mildness; and Baginsky, in speaking of Katz's collection, denies that too much prominence has been given to the bacteriological examination.

In a discussion following a paper by Biggs on the results of the treatment as carried out at the Willard Parker Hospital of New York, very instructive comments were made by Winters which it is worth while to quote in some detail. In criticising the statements and methods of the paper (which was strongly favourable to the treatment), he gave it as his opinion that "in not a single case has there been the least evidence that the formation of the pseudo-membrane was checked—the toxæmia has not in one instance been relieved or lessened. There has been no indication in the character or frequency of the pulse or in the general condition of the patient that a specific for the toxæmia had been administered." For the first three months of 1894 the death-rate at the hospital without antitoxin was 32 per cent; in the corresponding time in 1895, with antitoxin, it was 28 per cent. And the speaker added the extremely important opinion that this small diminution in the mortality was entirely due to the class of cases treated, some of them showing no clinical evidence of diphtheria, and the diagnosis being made from a bacteriological standpoint only. Further, in dealing with the claimed effect of the antitoxin in lowering the mortality of the cases intubated at the hospital, Dr. Winters asserted that the writer of the paper had ignored the fact that in December, 1894, eight successive recoveries from intubation were recorded; and he also quoted another series of 14 cases intubated at the Foundling Asylum during the same month, with only two deaths. He went on to point out that none of the antitoxin statistics can compare with these results.

I should conclude that on the whole a very material allowance must be made for this element of doubt, and indeed that

no set of statistics can be received without distrust in which it is not clearly recognised and, as far as possible, eliminated. To what extent the figures have been affected by it I am of course unable to form any opinion; but I cannot avoid laying stress on the fact that not one of the reports to which I have referred really recognises or meets the objection.

(5) Finally, it must be admitted that the statistics hardly agree with one another in their conclusions as fully as could be wished; for undoubtedly the English reports, as a whole, are by no means so satisfactory as those published abroad. Thus, in the Birmingham cases, although the death-rate is materially lowered, the mortality is still much above that of the cases quoted in the first part of this article; and the report of the Metropolitan hospitals gives a mortality which is also above many of the foreign statistics. Nevertheless, in every report he rate of mortality has been very considerably lowered.

The death-rate of the tracheotomies performed in the cases treated with antitoxin affords, I think, the strongest evidence in favour of the treatment. I quote a few examples of the statistics given :—

1.	Mortality	before	introduction of antitoxin		77·5	per cent.
	,,	after	,,	,,	52·4	(Körte)
2.	,,	before	,,	,,	59·5	
	,,	after	,,	,,	48·4	(Metropolitan Hospitals)
3.	,,	before	,,	,,	79	
	,,	after	,,	,,	34·5	(Marsh)
4	,,	before	,,	,,	75	
	,,	after	,,	,,	59·1	(Birmingham)

Again, Von Ranke reports 37 cases of intubation with a mortality of 29·7 per cent., and Bokai 49 cases, mortality 43 per cent.; whilst in Kossel's cases the death-rate from tracheotomy amounted to 52·2 per cent., and in Schroeder's to 9·7 per cent. only. Winters' damaging criticism of the Willard Parker Hospital statistics quoted above must however be kept in mind.

Stress may also be laid upon one more striking piece of

evidence. As already stated, Körte reports 121 cases of diphtheria treated with antitoxin in which the mortality was 33·3 per cent., whereas it formerly amounted to 50 per cent. But during the period in which these cases were under observation, the supply of serum temporarily failed, with the result that the mortality again rose to 53 per cent. Had details of these cases been given the evidence must, I think, have been accepted as conclusive.

There is, however, yet another side from which the question may be viewed, and which, indeed, must necessarily be taken into account in attempting to form a judicial opinion on its merits. Thus, following the extracts quoted above from the American Year-Book, come these further statements. (1) Feige treated 37 successive cases with the local application of Liquor Ferri Perchloridi with only one death, and accordingly comes to the conclusion that this method of treatment is almost a specific for the disease. (2) Loeffler, writing in October, 1894, reports 71 cases treated in private with the application of toluol locally without a single death, and 30 hospital cases with a mortality of 4·9 per cent. (3) Binet uses local applications of resorcin in fifteen times its weight of glycerol, and reports 43 cases with a mortality of 9·3 per cent. (4) McGillicuddy states that his death-rate has been practically nil whilst using local applications of kretol (20 per cent.), with the administration of a 2 per cent. solution of the same drug internally; and (5) Munn reports 26 cases treated with methyl-violet with a mortality of 7·7 per cent.

Again, turning to our own journals during the past four or five years, I find the following reports:—Dr. A. M. Sydney Turner treated 30 cases with the local application of paraffin and the internal administration of iron without a single death; and Dr. Frank A. Coward reports a series of 60 cases treated by perchloride of mercury solution internally with a similar record. Dr. Soltau Fenwick, again, experienced a mortality of only ·9 per cent. in 22 cases treated internally by a solution of perchloride of iron and chlorate of potassium. But by far the

strongest evidence from my present point of view is to be found in a paper by Dr. Selldén, the Medical Officer of the Government of Sweden, which is quoted by Dr. James T. R. Davison in the *Lancet* of August 18th, 1894. Dr. Selldén states that in the district of Norberg 564 cases of diphtheria occurred between the years 1879 and 1882 with the enormous mortality of 92·7 per cent. These cases received no specific treatment. During the following three years, from 1883 to 1886, 132 out of 160 cases were treated in the same district with the internal administration of cyanide of mercury with only one death, or a mortality of ·76 per cent.; whilst every one of the remaining 28 cases not so treated died. Further, Dr. Selldén and his colleagues have collected no fewer than 1400 cases treated with cyanide of mercury internally, and without any local application whatever, with a mortality of only 4·9 per cent.; and Dr. Werner supports these statistics from the results of his own experience in Narwa, in the Gulf of Finland.

These last-mentioned astonishing figures read almost like a burlesque on the statistics of the antitoxin treatment of diphtheria. I have not been able to refer to the original papers, but there appears no reason to doubt their genuineness; and if they are correctly reported, they must certainly be held to warrant a considerable degree of caution in accepting statistics as a reliable guide to the formation of an opinion as to the claim of any particular method of treating a disease to occupy the position of a specific.

In conclusion, it is clear that, in spite of an endeavour to approach the consideration of the subject in as unfriendly a spirit as possible (a spirit which in the examination of statistics it is perhaps wise to cultivate), the reports of the Glasgow and Metropolitan hospitals stand to a large extent untouched. On the other hand, I do not think that, as far as I have seen, the statistics quoted from foreign sources are detailed enough to establish the inferences which their authors draw from them. In one or other, and generally several, of the conditions which

I have laid down they all fail; for either the ages in the series compared are not given or are given imperfectly, or the period of the disease at which the cases came under treatment is not stated, or there is no satisfactory recognition of the new condition introduced by the routine bacteriological examination and its teaching.

The statistics which I have collected from the Birmingham General Hospital prove, as I have shown, the untrustworthiness of the reports which ignore these most important points. The two reports which I have excepted, namely, those of the Glasgow and Metropolitan Hospitals, are unassailable as far as age is concerned, and the latter also as regards period of admission; in the last-mentioned important point the Glasgow report is inconclusive. Both of them, however, fail, as it appears to me, to adequately deal with what I believe to be the chief difficulty in the matter, namely, the change which came over our views as to what clinically constitutes diphtheria almost simultaneously with the introduction of the antitoxin treatment, and its effect upon the class of cases admitted. That this factor may possibly have to be dealt with in the Metropolitan Hospitals reports is suggested by the fact, which I have already mentioned, that many more cases were admitted during the antitoxin period than in the preceding year. Finally, the publication of the most exaggeratedly favourable statistics of the results of other methods of treatment must serve as a caution against a too willing acceptance of figures as a reliable guide in these matters.

To sum up, I believe that the beneficial results which arise from the use of antitoxin in diphtheria have been over-stated in many of the reports, and would shrink to smaller proportions were the latter to be subjected to that full examination from which they are at present protected by their lack of detail. On the other hand, the evidence of the diminution in the mortality of each age period is very strong, although certain weak points in even the best of the reports render it still open to a slight degree of doubt. The marked diminution in the tracheotomy

mortality, however, is undeniable, and forms the one absolutely unassailable piece of evidence that we have before us. It appears to me to be conclusive as to the value of the treatment.

Addendum.—Since the above article has been in type, a very striking set of statistics has appeared to which it is worth while to draw attention. In the *Guy's Hospital Gazette*, June 20th, 1896, a short account of the results of the use of antitoxin at that Hospital is published by Dr. A. Salter; and a comparison is instituted with those obtained in the two preceding years. The conclusions to be drawn therefrom are strongly in favour of the new treatment.

It was formerly the custom at Guy's Hospital to admit no case of diphtheria into the wards unless the patients were suffering from such urgent dyspnœa as to either require immediate tracheotomy, or to render its performance highly probable. Since the introduction of the treatment by the antitoxic serum, Dr. Salter positively states that this practice has been rigidly adhered to, and it thus comes about that in everyone of the 45 cases admitted since the summer of 1894, and treated with antitoxin, tracheotomy was performed. The results of these cases are compared with those obtained in a series consisting of the 45 consecutive cases treated immediately before the introduction of the serum, and full details as to the age of the patients in each series are given. It is true that no information is supplied as to the period of the disease at which the patients first came under treatment; but this point is one which is probably of less importance in dealing with a series of tracheotomised cases than it is in an ordinary series.

The results are briefly as follows:—In the 45 cases treated by the older methods, 30 died, giving a mortality of 66·6 per cent. whereas, of the 45 cases treated with antitoxin only 9, or 20 per cent., proved fatal. It is true that of the antitoxin cases 71 per cent. were under five years of age as compared with 80 per cent. in the earlier series; but it is obvious that allowance for this

fact will do away with but a small part of the diminution in the mortality. On the other hand, it is not positively stated that all of the earlier patients underwent tracheotomy; and it is therefore at least possible that the first series may have been of a somewhat slighter degree of severity in this respect.

These results admit of but one explanation. The two series are absolutely comparable in their character and the ground of admission, and the correction which has to be made for age is but a slight one. The drop from a mortality of 66·6 to one of 20 per cent., the latter at any rate in a series of cases all of which were tracheotomised, is I think a conclusive proof of the value of the serum; and it appears to support the inference which is suggested above that the maximum benefits to be obtained from the use of antitoxin are to be found in tracheotomised cases. Why this should be so it is not easy to understand.

REPORTS OF CASES.

FRACTURED PATELLA.

BY J. LIONEL STRETTON,
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MOST Surgeons agree in placing Fractured Patella among cases whose treatment is uncertain and often unsatisfactory, and therefore any new form of treatment which offers a more constant result is worthy of trial. Many of these methods are not taken up, perhaps not noticed, or left to be practised only by the originator, and this is my reason for bringing forward the operation described by Mr. A. E. Barker in the *British Medical Journal*, 18th April, 1896. The fact that it has been successfully practised in other hands may assist in establishing its value. Along with the notes I publish those of the case which immediately preceded it, and was treated by Manning's splint, a method which I have found to give the most satisfactory results of any mechanical treatment.

D. B., age 67, Transverse Fracture of Patella,, admitted 26th December, 1895, treated with Manning's splint.

Feb. 20th, 1896. Plaster of Paris case applied and patient allowed to get up. The patella appeared to be fixed; there was not much separation between the fragments. Discharged on the 25th of February. He was seen the end of May, when it was noted that the use of his leg was not satisfactory; he walked with a stick and the joint was stiff.

G. H., age 69. Transverse Fracture of Patella, admitted 26th April, 1896, five hours after the accident. Fracture caused by a kick from a horse. The skin over the patella was bruised. Effusion into the knee-joint and the bursa patellæ. The patient was addicted to drink and did not appear to be a good subject for operation. An anæsthetic was administered, and the fragments brought together after the method above mentioned. Some difficulty was experienced owing to considerable effusion of blood into the bursa patellæ. The after history was uneventful; no rise of temperature and no constitutional disturbance. Owing to bursa, which I had cleared of blood, I did not commence massage the first three days, after which it was regularly employed. The wounds were dressed on the sixth day and found healed, the ends of the wire were rather prominent under the skin, but were easily pressed down.

May 17th. The leg has been moved slightly every day. As yet any considerable degree of flexion causes pain. He got up on the couch to-day.

May 25th. Patient walked to the end of the ward to-day by holding on to the beds. There appears to be firm bony union. The ends of the wire are not so prominent. No effusion.

June 6th. Is walking about the ward.

The contrast between these two cases is very marked; the first man is two years younger and in a far better general state of health, yet at the end of five months he is unable to walk without the assistance of a stick and has a stiff joint. The second man, in addition to being older and a very bad subject for operation, had his fracture caused by direct violence, which injured the

surrounding tissues, and yet he can walk with far more freedom than the first in a fifth of the time, and has a movable joint.

It is impossible to judge of an operation by the result of a single case, but taken with those reported by Mr. Barker mine supports the operation, and I shall certainly repeat it in future cases. The unfavourable conditions render the case more important. The operation itself is most simple, and can be easily understood from the graphic account above alluded to.

I am inclined to think that it would be well at a later period to remove the wire if satisfied that bony union has taken place. It is not so necessary in the case of old men, and I shall not risk any further interference with the present subject, but in a younger man I would advocate its removal.

For the notes of the cases I am indebted to our House Surgeon, Mr. P. E. Davies.

EDITORIAL NOTES.

We have much pleasure in announcing the appointment of Dr. Foxwell as one of the Examiners in Medicine in the University of Cambridge. We congratulate Dr. Foxwell on the honour which has been conferred upon him, and which, coming from his own University, must be peculiarly gratifying. We learn that the appointment is one which will not interfere with Dr. Foxwell's work in Birmingham, inasmuch as the Examiners are only required to reside at Cambridge for two periods of four days each in the year.

We are informed that Mr. Priestley Smith and Mr. F. Marsh have been appointed Consulting Ophthalmic Surgeon and Consulting Aural Surgeon respectively to the Hockley Branch of the Birmingham Provident Dispensary. We have much pleasure in noting that the appointments were accepted by these gentlemen only on condition that an addition should be made to the Rules, making it clear that it is the intention of the Committee

to limit the benefits of the Institution to the class of persons for whom it was originally founded, viz., those whose circumstances render small periodical payments advisable, and that the Committee willingly acted upon their suggestion. If other Provident Medical Institutions would follow the example of the Hockley Provident Dispensary in this matter, the "battle of the clubs" would soon end in a peaceful settlement.

REVIEWS.

MEMORIALS OF THE FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.*

THESE Memorials have been published by Mr. Duncan at the request of the Fellows of the Faculty of Physicians and Surgeons of Glasgow. They are chiefly derived from the Minute Books of the Faculty, of which there is a complete series, with the exception of one which was accidentally destroyed by fire, and which leaves a gap in the history between the years 1681 and 1733. This gap, together with many others which would necessarily be evident had the minute books alone been relied upon for the materials with which to write this history, have been filled up from other sources acknowledged in the preface. Mr. Duncan is to be congratulated upon the result of his labours, which forms an unusually interesting and, we may add, entertaining chapter of medical history.

At the latter half of the 16th and beginning of the 17th centuries the city of Glasgow numbered scarcely more than seven thousand inhabitants. What was the state of its sanitation, and the visitations to which it was therefrom exposed, may

* Memorials of the Faculty of Physicians and Surgeons of Glasgow, 1599–1850, with a Sketch of the Rise and Progress of the Glasgow Medical School, and of the Medical Profession in the West of Scotland. By Alexander Duncan, B.A. Lond., Secretary and Librarian of the Faculty. Glasgow: James Maclehose and Sons. 1896.

be gathered from the chapter devoted to their description. Up to that time the practice of surgery had remained open to all who might choose to follow it, without let or hindrance in the shape of examination or control of any sort; whilst it must be remembered that the distinction between barbers and surgeons was only so far advanced as that many practitioners discarded the former of the two "arts" and practised as surgeons only. The practice of medicine, on the other hand, was mostly confined to men who possessed a University degree, and who therefore occupied a higher social position. The incompetence of many of those who followed the calling of surgery in the town had by this time become so notorious, and its results so disastrous, as to attract public attention; and accordingly, towards the end of 1599 a charter was obtained from James VI. by Dr. Peter Lowe, by which he and Dr. Robert Hamilton were empowered to subject all persons practising the art of surgery within certain specified boundaries to such examination as they should consider necessary. This charter formed the origin of the Faculty of Physicians and Surgeons of Glasgow.

The Dr. Peter Lowe to whom reference has just been made is a sufficiently important person in the history of Scottish medicine to deserve and receive a chapter to himself. From this it appears that, wherever and whenever the earlier years of his life were passed, he left Scotland for the continent towards the middle of the 16th century, and spent about thirty years in France, where at one time he held the honourable post of "Ordinary Chyrurgeon to the French King and Navarre.' Soon after his return to Glasgow, probably about the year 1596, he appears to have held some official relation to the Town Council of Glasgow, as is shown by a minute of that body passed in 1599. Another minute, this time of the Presbytery of the Kirk, shows him in a different light; for we hear of him as being ordered—partly for not having behaved himself "as becumes" whilst occupying a penitentiary position on "ye Piller" (whatever that erection may have been), and partly for

having failed in the payment of a monetary fine—to take up the same prominent position for two Sundays further, and also to "satisfie ye Thesaurer, as ye said Sessioun has ordenit him to do." Having in 1601 accompanied the Duke of Lennox, Lord Great Chamberlain of Scotland, and special Ambassador to the Court of France, on a mission to that country, we find him in the following year, together with his colleague Dr. Hamilton, handing over his powers of Examiner to certain successors specially nominated for the purpose. He died in or about the year 1612, having been the author of several medical works, chief amongst which was a treatise on Surgery, which was probably the first systematic work on that subject written in English and published in this country.

The powers of the "Visitors," as Drs. Lowe and Hamilton were officially named, included the notification of suspected criminal cases to the Magistracy, and the prohibition of the practice of medicine by all but those possessed of "ane testimonial of ane famous universitie quhair medicine be taught, or at the leave of oure and our dearest spouse chiet medicinaire," in addition to the examination and licensing of practitioners of surgery. As already mentioned, these powers were speedily transferred to a more numerous body of men; and from this step may be said to have arisen the real foundation of the Faculty as a corporate body. In 1602 the scope of the institution was enlarged by the recognition of the body of barbers—their recognition, however, not as members, but rather as servants, who might be dismissed, and with whom all connection might be severed when the right time for such a measure should arrive. This separation between barbery and surgery was not finally carried out until the year 1719, when a similar division was effected in the neighbouring city of Edinburgh.

The story of the gradual growth of the Faculty is told in the successive chapters of this book, and is too long to allow us to continue farther our abstract of it. But reference may at least be made to the long and celebrated law-suits which arose

out of the question—first as to the legality of the practice of surgery by doctors of medicine not possessing the qualification of the Faculty, and secondly as to the right of the possessors of the degree of master of surgery, recently instituted by the University of Glasgow, to practise within the jurisdiction of the Faculty without its diploma. The first of these questions was decided in favour of the Faculty; but the second, after an appeal to the House of Lords, was gained by its opponent, the University.

The foundation of the Glasgow Medical School can scarcely be said to start from as early a date as that of the Faculty. It is true that the "Visitors" were empowered to give instruction to apprentices, but it does not appear that such instruction was ever actually offered. A professor of medicine was, however, appointed in the year 1646, in the person of Dr. Robert Mayne, who seems to have given lectures on that subject for a time, though this practice speedily lapsed, and was not revived after his death until the year 1714, when a successor was appointed. Other professorships were then added to the list; but it was not until the arrival in Glasgow of the well-known Dr. William Cullen, and the institution by him of a private course of lectures (which were soon recognised by the University) that the teaching of the medical sciences was established on a permanent and satisfactory footing.

The book includes, in addition to the matters which we have noticed, an account of the origin and development of the Charities and other medical institutions of Glasgow, a notice of some of the chief Glasgow medical men of the 18th century, and a complete roll of the members of the Faculty from its foundation to the year 1851. As we have said, it is well and interestingly written: we must add that its interest will appeal by no means exclusively to the Fellows of the Faculty and the other practitioners of the city of Glasgow.

STATE-AIDED *v.* VOLUNTARY HOSPITALS.*

As NOTHING is to be gained by exaggerating a case if it is a good one, we are glad to note that in the pamphlet form of his article now before us Dr. Sibley has expunged or toned down many of the statements which disfigured it in its original shape; but its sub-title would still run more appropriately if it were written "an abusive exposition of English hospitals," for they are indiscriminately discredited with the faults of the worst institutions claiming that title.

The pamphlet sets out by assuming that hospital management in Great Britain "is unsatisfactory," a somewhat bold assumption in face of the notorious fact that English hospitals easily hold the first place in the important particulars of healthy and cheerful buildings, good nursing, liberal diet, and general care of the patient during his stay and upon his discharge; the abuses which are pointed out refer solely to the out-patient departments, and this illustrates the extraordinary prejudice which colours the whole brochure, and so influences a writer of ability that he shuts his eyes to all the good that is done by our hospitals, and sees only the admitted blot upon our system.

But, to return to the first page of this pamphlet, the author next makes the assertion that the systems of hospital management fall into two distinct classes—viz., 1, under government control; and, 2, voluntary; and he goes on to state that in England we have the voluntary system, while the rest of the civilised world has adopted the other. This is a very misleading and inaccurate statement, for voluntary hospitals are not unknown, though much more rare, abroad; and here we have workhouse infirmaries, which, however poorly equipped and badly officered in the past, correspond to the state-governed hospitals of other civilised countries, although these, with the exception of the United States, possess few institutions to

* State-aided *v.* Voluntary Hospitals. An Exposition of the Abuses of English Hospitals. By W. Knowsley Sibley, M.D. London: T. Burleigh. 1896.

compare with the noble medical charities, instituted and supported by private beneficence, that have existed for the past hundred years in all our chief centres of population. It was on account of the existence of these charities that the poor law infirmaries have with us remained comparatively undeveloped until recent times, when, owing to the inability of the voluntary hospitals to supply the enormous demand of our overgrown urban populations, the poor law authorities have had to organise and equip some of their infirmaries on a scale comparing very favourably with the majority of continental hospitals.

But notwithstanding the improvement in some of the poor-law infirmaries we find no diminution in the popularity of our voluntary hospitals, no falling off in their revenues, no desire upon the part of the working classes to see them abolished, but on the contrary a more active and intelligent support by those classes than has ever previously been manifested. No doubt this is in a great measure due to the unpopularity acquired by the poor-law in former times, the benefits of which are still regarded as a disgrace by the decent poor, but the existence of this sentiment is a fact which cannot be ignored in the discussion of this question. The author summarises the points in which he thinks our hospitals compare unfavourably with those of other countries, and a most extraordinarily feeble indictment it must be allowed to be; here it is: "(1) the absence of central organisation or control; (2) the difficulty of obtaining sufficient funds; (3) the habitual excess of expenditure over income; (4) the overcrowding of out-patient departments: and (5) the indiscriminate treatment of persons, especially in these departments, whether able to pay a private doctor or not."

Surely the first of these is of the nature of a *petitio principii*, for it is the very question under discussion and should not be imputed as a fault until it has been shown to be one. The author contends, in support of this objection, that such a central body would diminish establishment expenses, reduce the cost per bed to something like that of the poor law infirmaries, and prevent waste of money in advertising for subscriptions. He

does not state definitely how this body is to be constituted and worked, but these anticipated results, which are purely economical, are by no means certain and are scarcely justified by our experience of Boards in general, which are not famed for economical administration, and become more extravagant in proportion to their centralisation. Moreover the voluntary hospitals contain a much larger proportion of acute cases, and especially of surgical cases, requiring a larger staff of nurses, with more expensive instruments and dressings.

The second point is obviously exaggerated; the difficulty of obtaining income is clearly not so very great or so many struggling (*i. e.*, unendowed) charities would not keep their heads above water; that they can go on with an annually increasing indebtedness is an impossibility, as there must be a tendency to extinguish those which cannot make ends meet. We believe the author's expressed opinion that indebted charities get the most support is contrary to all experience, as it is known to be a hard matter to get suitable persons of influence to work for a charity which is persistently in pecuniary difficulties, and the shrewdest hospital officials are most indisposed to incur heavy debts. The third point differs little in meaning from the second, but is even a weaker statement as expenditure cannot habitually exceed income, such a process sooner or later must come to an end, even if it does temporarily prevail in any institution.

HOSPITAL MEDICAL LIBRARY JUL 2 1907

In numbers four and five we come to the real grievances, without which we do not think this pamphlet would have ever been written; we admit that our out-patient departments are over crowded, but the proper remedy is to limit the number of new cases on each day, and from experience of this plan we believe it to present no serious practical difficulty; further we would prohibit all "casualty" attendances at hospitals except in the case of accidents or applicants for admission. We admit, too, that patients obtain treatment who can afford to pay, but the difficulties here are very much greater than those who cry out seem to realise. A man may be able to pay a doctor if he can be cured in a reasonable time, but cannot continue to pay

one who does not or cannot cure him; this is a common case, and it is unfortunately true that many patients have spent all they can afford on ineffective doctoring before they come to hospital; such patients probably benefit by their experience in future illnesses and also perhaps confide it to their friends.

A very great deal is included under this heading of the man who could pay to be promptly cured but cannot pay for prolonged treatment; it sends to hospital eventually many or most cases of chronic disease in the classes just on the borderland of poverty, and also those even better off who could afford to pay small fees or even a couple of guineas but could not find twenty or thirty guineas for a prolonged illness or for an operation with all the attendant expenses of nursing, etc., and those who require the frequent attention of a skilled specialist as in diseases of the bladder, eye, ear, nose, throat, etc. Even the family doctor acts sometimes very strangely. One Sunday morning we noticed at the hospital gate a carriage from a well-known livery stable, and on enquiry it appeared that a resident in a suburb living in a road where the houses are of about fifty pounds a year rent, had been driven to the hospital in this carriage to be treated for a burn, and moreover that he had been attending in the same manner for some days. We made it our business to pursue the enquiry, and found that the hospital authorities had objected to the case as unsuitable, but that he had been sent *by his family medical attendant.* The same practitioner, who found it convenient on this occasion to make use of the hospital, will doubtless some day be found loudly complaining of the injury done to general practitioners by the hospitals. The husband of a patient of ours called every week at the hospital and left a guinea as a donation; when this became known an enquiry was made, and it was found that she had been sent in by her own family medical attendant; she was nevertheless discharged. These cases show that private practitioners, when it suits their own purposes, encourage and perpetrate abuse of hospitals.

Dr. Sibley represents abuse by the well-to-do as the peculiar

fault of English hospitals; yet he cannot fail to know that the system of paying beds which exists throughout the continent and America is an injury to the medical practitioner quite as real as any that exists here. A friend of ours met with a serious accident in Switzerland involving head injury and fractures; although a gentleman of position he was sent to a public hospital and only charged an inconsiderable sum for most efficient and kind care and attendance lasting over several weeks! This was in a hospital under state control! Why does Dr. Sibley assume that his Central Board would be a model of administration and economical wisdom, and above any temptation to consider in its policy the wishes and prejudices of the public? How is he going to constitute his board so as to make it more independent of political and other influences than the Committees of our great Charities? What grounds are there for thinking that any Board, popularly elected as it most certainly would be, would be more able or more willing to effect the changes in connection with the out-patient departments which he desires? Why can we not get them now? Mainly because they are regarded as a limitation of popular privileges, and we have not yet convinced our Hospital Committees that the interests of our charities demand these reforms, and that all public privileges worthy to be preserved will be safe. Why should a central popularly elected Board be more easily persuaded or bolder than our present Hospital Committees? What reason have we to believe that our voluntary hospitals would be more efficiently managed by central official means than by their present committees? The men who take part in the work of hospital administration are in education, business knowledge, and character, among the highest in their respective communities; no popularly elected Board would be composed of better men; in all probability except in London and the large cities they would be decidedly inferior.

It is probable that Dr. Sibley has spent a few years abroad and has learnt to admire the admirable official systems of France and Germany, and would like to introduce here their correspond-

ing orderly and harmonious working. But in time we hope he will learn that our English system, comparatively clumsy as it looks, has produced splendid results, and that English hospital administration has been and will continue to be productive of institutions which are the admiration and pattern of the whole world. Because certain administrative details do not please us, we shall not be so illogical as to condemn the system which has given so much that is good; rather let us try to devise a less revolutionary and more effective remedy than these crude proposals, which have not the remotest prospect of being accepted as a solution of the difficulty.

AN AMERICAN TEXTBOOK OF OBSTETRICS.*

THIS book, in two handsome volumes, is the work of fifteen prominent American obstetricians, and well displays the merits and defects inseparable from such a system of collaboration. The especial design in preparing the work, as stated in the preface, is "to make clear those departments of obstetrics that are at once so important and usually so obscure to the medical student." This design has on the whole not been well carried out. Many of the subjects are treated in a manner which shows that the author has undertaken a wide course of reading, has imperfectly digested all he could find written about his subject, and has then "crowded down" the result into these pages. The effect of this is to cause the reader to feel perplexed as to what the author would like done in any particular case, and after a patient effort to find out what is recommended, give up the attempt in despair. A good textbook should not content itself with telling what a number of other people have done; it should do something more; it should tell the experience of the writer, and give his own conclusions as to the best methods to be adopted in given circumstances. These remarks apply

* An American Textbook of Obstetrics for Practitioners and Students. RICHARD C. NORRIS, M.D., Editor; ROBERT L. DICKINSON, M.D., Art Editor. London: The Rebman Publishing Company Limited. 1896.

with especial force to the writers of this work, several of whom are eminent, all of them prominent.

The first part of the work treats of the Anatomy and Physiology of the Female Generative Organs; this section, and the part of the next one which deals with Embryology, form two of the most satisfactory portions of the whole book; the author gives a fine and clear account of his subjects, and the Art Editor assists him bountifully with illustrations.

The second section deals with Pregnancy, successive chapters treating of the physiology, diagnosis, hygiene and management, and the pathology of the condition. Labour is the subject of the third section. The external examination of the patient's abdomen is detailed at great length and with an abundance of realistic reproductions from photographs. The great usefulness of this method of examination is very properly insisted upon; it is too much neglected in this country, although it is more easy to learn, and teaches infinitely more, than the usual vaginal examination. Proper stress is also laid upon the desirability of examining a patient some time before labour is due. If every pregnant woman on engaging a medical attendant were merely to have the external measurements of the pelvis taken, many an emergency, which now comes as a surprise, could be properly prepared for or averted.

Wherever the subject of antiseptics or aseptics comes in, the authors speak out with no uncertain sound. The key-note is struck on page 719 by the following words in italics:—"The doctor and the nurse should know that they jeopardise their patient's life by introducing into her vagina a finger that is not disinfected." Directions for ensuring the prevention of infection are fully and clearly given at two or three different parts of the work, and the methods are judicious, well selected, and correct applications of scientific principles.

The writer on puerperal infection firmly believes in infection through the air—*e. g.*, from a dead rat in a cellar, from manuring and putting guano on fields in the country, and so forth—as well as in the usual method of contact infection. Such a belief is an

unfortunate possession for an obstetrician, still more for his patients; it makes the explanation of the occurrence of a case too easy and obvious. We believe that air infection, if it occurs at all, is so rare that it ought to be neglected in searching for the cause of infection.

The statement of the mortality in childbed in private practice made on page 718 is surprising; it is said to be from 1 to 1·12 per cent. in New York and other large cities; these things are evidently better managed in this country, where the mortality is less than half these figures.

The last section deals with obstetric surgery, and is one of the least satisfactory; far too much information is given and far too little definite instruction. A leaven of dogmatism would have been advantageous. In the chapter on the induction of labour and abortion, for example, most of the methods which have been used are mentioned, but are not described with sufficient exactness; neither are the differential indications for the various methods given. In Krause's plan the solid bougie is described as being "made to work its way *several* inches towards the fundus." (The italics are ours.) And again, "the higher it can be made to go, the more certain and rapid will be the onset of labour;" the height to which the bougie should be passed would be better described in inches or centimetres. Among the methods of dilatation of the cervix, that by branched metal dilators, as used chiefly in France, is described; but no warning is given as to the risk, which is likely to lead eventually to the entire disuse of this dangerous instrument. The description of the use of the forceps as a lever is so obscure and indefinite that it is impossible to get a clear idea of the author's meaning. The application of forceps to the breech is described and recommended on page 902. This method of delivery is not only unnecessary, but very dangerous to both mother and child.

Symphysiotomy is treated of at considerable length, and has apparently had considerable vogue in America. In discussing the indications and limits of the operation, sufficient stress is

not laid on the fact that it is much too dangerous an operation for the mother, to justify its performance, except for the almost certain prospect of a living child. The impression given after reading the chapter on the operation, which is written by an author who appears to have some affection for it, is that the disfavour with which symphysiotomy has been generally received in this country is amply justified by the risks, immediate and remote, and by the results which have been attained by its practice. The book closes with a chapter on Cœliotomy for sepsis in the puerperal period.

The promise contained in the preface that the directions for treatment shall be particular and full has hardly been fulfilled. On the other hand, the book has been made the most plentifully and sumptuously illustrated one of its class. With few exceptions, nothing but unqualified praise can be bestowed on the engravings. A most useful diagram of a projection of the pelvic brim and contents on the anterior abdominal wall is given in Plate I. The projection is faulty in that the anterior surfaces of the pubic bones and symphysis are represented as looking directly forwards, for which reason the upper border comes one inch and a half further up on the anterior abdominal surface than it should do. This fault can be rectified in a future edition, and the diagram will then be of great service in helping to impart a knowledge of the proper relation of the pelvic contents to the hypogastric abdominal region, a knowledge of which relation is necessary for the proper learning of the method of bimanual examination.

The authors are to be congratulated on their publishers, who have done their part of the work excellently. The clear printing, the abundance and excellence of the illustrations, and strong binding, leave nothing to be desired in the style and get-up of the volumes. The usefulness of the work is greatly enhanced by a full and well-arranged index.

A HANDBOOK OF LEPROSY.*

IT is always a somewhat difficult matter to do full justice to books which are avowedly written both for the medical profession and the lay public; for the attempt to cater for those who are unskilled in the elements and technicalities of medicine always gives to such a book an impression of superficiality which is both a little irritating and apt to prejudice the reader in its disfavour. Dr. Impey's Handbook of Leprosy has been written with the double purpose of assisting medical men to avoid those mistakes in diagnosis which, in his experience, have often resulted in the sending of patients to a leprosy asylum who are innocent of all affection by the disease, and also of interesting the public generally in the subject, and of enabling them to detect its early manifestations. His book has consequently not escaped the faults which we have mentioned; and, although it possesses many merits of its own, we can neither help being aware of this impression of superficiality nor making some necessarily rather injurious comparisons between it and the extremely scientific work published but a short time ago on the same subject by Drs. Hansen and Looft, the well-known Norwegian specialists. Such comparisons are, however, hardly fair, for Dr. Impey has avowedly had no intention of writing a scientific, but rather a popular handbook.

We can, at all events, speak in terms of high praise of one of its features—namely, the series of 37 most excellent photographs which take up considerably more than half of the bulk of the book. These photographs give a most vivid and complete idea of the various aspects under which leprosy may be met with, and of themselves make the book thoroughly worth buying and studying. Whilst alluding to this part of the book, we may also speak of the very remarkable effect of an attack of erysipelas in improving the condition of some leprosy patients. Two photographs are given of each of two patients who were

* A Handbook of Leprosy. By S P. Impey, M.D., M.C., late Chief and Medical Superintendent, Robben Island Leper and Lunatic Asylums, Cape Colony, South Africa London: J. and A. Churchill. 1896.

afflicted with leprosy in one of its most disfiguring forms; one of the photographs was taken before, and the other after, an attack of erysipelas in each case, and the improvement produced in the appearance of the patients is certainly most remarkable. Dr. Impey concludes from his experience that, in early and suitable cases, an artificially induced attack of erysipelas affords a means of practically curing the disease.

Some of Dr. Impey's views will, we imagine, hardly meet with the approval of other workers in the same field. Thus, in addition to the tubercular, anæsthetic, and mixed tubercular and anæsthetic forms of leprosy, he would recognise yet one more—namely, a "syphilitic leprosy," or leprosy occurring in a patient already the subject of syphilitic disease. This combination is, according to the author, responsible for those peculiarly hideous mutilations and disfigurements which, in extreme cases, render the unfortunate victim such a terrible spectacle; and he further maintains that the failure to recognise this variety of leprosy has resulted in a tendency to somewhat exaggerate the horrors of the uncomplicated disease. Again, Dr. Impey holds that there are possibly two forms of the leprosy bacillus; and, moreover, that during the long latent period which intervenes between infection and the appearance of symptoms, the bacilli traverse the blood or lymphatic vessels enveloped in leucocytes, which, in this instance, would appear to deal more gently with their prisoners than is usually thought to be their habit. Neither of these positions would, we imagine, be supported by the majority of observers; and, indeed, not a few of the pathological points strike us as being somewhat open to question. These points, however, are of comparatively slight importance in a book of this nature, and need not weigh against its many good points.

There are many evidences in the book that its author has had great opportunities of studying his subject, and he has evidently taken a lively interest in its scientific as well as its clinical aspect.

AN ATLAS OF ILLUSTRATIONS OF PATHOLOGY.*

THIS set of plates well maintains the reputation gained by the preceding fasciculi of the New Sydenham Society's Atlas, and that is saying a great deal. The first specimen depicted is one of lympho-sarcoma of the testis, both the exterior aspect and an antero-posterior section of the tumour being shown. In each of these pictures the colouring and drawing are alike admirable, the artist having completely succeeded in avoiding that tendency to over-colouring so often met with in pathological plates. The same may be said of Fig. iii. in Plate xlvii., which depicts "a slowly-growing tumour of the testicle, probably of sarcomatous nature." Parts of the tumour have undergone fatty degeneration, the difference between the degenerated and the non-degenerated parts being beautifully shown. In Fig. iii. of Plate xlviii., "a hæmorrhagic sarcoma of testicle," the colouring is altogether too harsh and crude, and does not bear comparison with that of the other figures in this fasciculus.

Appended to the plates is an account of the pathology of the testis by Mr. Jonathan Hutchinson, jun., and we must say that, considering its brevity, it is one of the best essays on the subject that we remember to have read. More especially do we commend the section on Torsion of the Spermatic Cord, but the whole subject is so well treated as to deserve careful reading.

MALARIA AND ITS CONSEQUENCES.†

IN his preface the author explains that this work is the outcome of observations on Malaria during his practice abroad as an army surgeon. "He claims therefore that the views which he endeavours to explain . . . are the views not of a tyro but

* An Atlas of Illustrations of Pathology, compiled for the New Sydenham Society. Fasciculus x. Diseases of the Testis: with additional Letterpress by J. Hutchinson, jun.

† Malaria and its Consequences. By Robert Lindsay, F.R.C.S.E.

of one who may not unreasonably be deemed somewhat of an expert." The author then opens with the observation that Malaria is found in certain low-lying marshy districts in different countries. From this he goes on to give a description of the chemical constituents of the atmosphere, and finds that carbonic acid being present everywhere is a universal cause of disease of every kind and in every organ. To it is due disease of the nervous system, the joints, the lungs, senile decay, and all the ills flesh is heir to. He describes some cases which might be anything (but certainly not malaria). No mention is made of the parasitic cause of this disease; no clinical description is given of its course. Towards the end of the book mention is made of quinine, merely to say that it is of no use, the important ingredient in the mixture being the sulphuric or other acid used to dissolve it.

ARCHIVES OF CLINICAL SKIAGRAPHY.*

THIS is the first number of what is intended to be a regular monthly periodical devoted to the record of the developments of the so-called science of "Skiagraphy," and the publication of some of its most striking applications to the needs of medicine and surgery.

The number opens with a short account of the process itself, and contains six large "skiagrams" reproduced by the photo-mezzotype process. Many of these are very striking, and are excellent illustrations of the value of the discovery; a few of them, however, appear to us to have been somewhat touched up, a point which, if true, must detract a little from their importance. We welcome the appearance of this new periodical, and believe that it will not fail to meet with support.

* Archives of Clinical Skiagraphy. By Sydney Rowland, B.A. Camb., late Scholar of Downing College, Cambridge, and Shuter Scholar of St. Bartholomew's Hospital. Vol. I., Part I., May, 1896. London: The Rebman Publishing Company Limited. 1896.

INTERNATIONAL CONGRESS OF DERMATOLOGY.

We are requested to publish the following programme of the Third International Congress of Dermatology, to be held in London from August 4th to August 8th, 1896, under the Presidency of Mr. Jonathan Hutchinson :—

Tuesday, August 4th—

11 a.m.—Preliminary Business.

12-0.—Presidential Address.

3-0 p.m.—Subject: Prurigo. Dr. Besnier (Paris), Prof. Kaposi (Vienna), Dr. J. C. White (Boston), Dr. Payne (London).

Wednesday, August 5th—

9-0 a.m.—Clinical Demonstration of Cases.

10-30 a.m.—Subject: The Etiology and Varieties of Keratosis. Dr. Unna (Hamburg), Dr. Brooke (Manchester). Prof. Mibelli (Parma), Dr. Dubreuilh (Brussels).

10-30 a m.—Subject: Syphilitic Re-infection. Prof. Fournier (Paris), Mr. Alfred Cooper (London), Prof. Lang (Vienna), Dr. Fitzgibbon (Dublin).

2.0 p.m.—Clinical Demonstration of Cases.

3-0 p.m.—Papers.

Thursday, August 6th—

9-0 a.m.—Clinical Demonstration of Cases.

10-30 a.m.—The Connection of Tuberculosis with Diseases of the Skin other than Lupus Vulgaris. Dr. J. Nevins Hyde (Chicago), Dr. Hallopeau (Paris), Dr. Radcliffe Crocker (London), Prof. Riehl (Leipzig).

10-30 a.m.—The Duration of the Period of Contagion of Syphilis. Mr. Hutchinson (London), Prof. Campana (Rome), Prof. Lassar (Berlin), Dr. Feulard (Paris).

2-0 p.m.—Ringworm and the Tricophytons. Dr. Sabouraud (Paris), Prof. Rosenbach (Gottingen), Mr. Malcolm Morris (London), and others.

Friday, August 7th—

9-0 a.m.—Clinical Demonstration of Cases.

10-30 a.m.—The Nature and Relations of the Erythema Multiforme Group. Prof. De Amicis (Naples), Dr. Veiel (Stuttgart), Dr. Prince A. Morrow (New York), Dr. Stephen Mackenzie (London).

10-30 a.m.—Malignant Syphilis. Prof. Haslund (Copenhagen), Prof. Neisser (Breslau), Prof. Tarnovsky (St. Petersburg).

2-0 p.m.—Clinical Demonstration of Cases.

3-0 p.m.—Papers.

Saturday, August 8th—

9-0 a.m.—Clinical Demonstration of Cases, followed by Papers.

All information as to the arrangements for the Congress may be obtained from the Secretary-General, Dr. J. J. Pringle, 23, Lower Seymour Street, London, W.

Correspondence.

9, Easy Row,
Birmingham,
April 22, 1896.

To the Editors, *Birmingham Medical Review.*

Dear Sirs,

I should be greatly obliged to any of your readers who would kindly send me any specimens of fœtus or still-born children. I am anxious to obtain such material for some investigations on the Nervous System, and should like them sent as fresh as possible (not placed in spirits or any preserving fluid) addressed to me at the Pathological Laboratory, General Hospital.

Yours faithfully,

DOUGLAS STANLEY, M.D.

PUBLISHERS' DEPARTMENT.

New Inventions, Drugs, etc.

MESSRS. J. G. INGRAM & SONS send us one of their "Onah" Vaginal Douches, the general arrangement of which is seen in the accompanying engraving. The vaginal part of the apparatus is the same as that adopted in the "Vonda" syringe, a notice of which appeared in this Journal a few months ago. The special point in the present modification is the application of the suction power on the discharge side of the delivery tube, by which means a steady and forcible stream is drawn through the vagina until the supply can is emptied of its contents, the force of which is, moreover, not dependent upon the height at which the reservoir is placed. In finish and general workmanship the douche is of the highest excellence.

New Books, etc., Received.

The Nursing News and Hospital Review. May, 1896.

The Diagnosis and Treatment of Diseases of the Rectum. By WILLIAM ALLINGHAM, F.R.C.S. Eng, Late Senior Surgeon to St. Mark's Hospital for Diseases of the Rectum, and HERBERT W. ALLINGHAM, F.R.C.S. Eng., Surgeon to the Great Northern Hospital, Assistant Surgeon to St. George's Hospital. London: Baillière, Tindall and Cox. 1896.

A System of Medicine. By many writers. Edited by THOMAS CLIFFORD ALLBUTT, M.A., M.D., LL.D., F.R.C.P., F.R.S., F.L.S., F.S.A., Regius Professor of Physic in the University of Cambridge. Volume i. London: Macmillan and Co. Limited. 1896.

Gaceta Médica de Costa Rica. Ano i., Núm 1. 1º de Mayo de 1896.

Strathpeffer Spa, Its Waters and Climate. By R. FORTESCUE FOX, M.D. Lond., Vice-President of the British Balneological and Climatological Society. London: Adam and Charles Black. 1896.

Clinical Diagnosis, a Practical Handbook of Chemical and Microscopical Methods. By W. G. AITCHISON ROBERTS, M.D., D.Sc., F.R.C.P.E., F.R.S.E. London: The Scientific Press Limited. 1896.

A Text-Book of Histology, Descriptive and Practical, for the Use of Students. By ARTHUR CLARKSON, M.B., C.M. Edin., Formerly Demonstrator of Physiology in the Owens College, Manchester. Bristol: John Wright and Co. 1896.

Burdett's Hospital and Charities Annual. By HENRY C. BURDETT. London: The Scientific Press Limited. 1896.

The Pathology of the Contracted Granular Kidney and the Associated Cardio-arterial Changes. By Sir GEORGE JOHNSON, M.D., F.R.S., Consulting Physician to King's College Hospital, and Physician Extraordinary to Her Majesty the Queen. London: J. & A. Churchill. 1896.

The Hydro-Electric Methods in Medicine. By W. S. HEDLEY, M.D., in Charge of the Electro-Therapeutic Department of the London Hospital. Second edition. London: H. K. Lewis. 1896.

Statistical Report of the In-Patients of the Birmingham General Hospital for the year ending 31st December, 1895.

De la Prothèse appliquée au Traitement des Empyèmes de l'Antre d'Highmore. Par le Dr. SIMON DUNOGIER. Bordeaux: G. Gounouilhou. 1896.

An Inquiry into the difficulties encountered in the reduction of Dislocations of the Hip. By OSCAR H. ALLIS, M.D., Surgeon to the Presbyterian Hospital, &c. The Samuel D. Gross Prize Essay. Philadelphia. 1896.

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THE

BIRMINGHAM MEDICAL REVIEW.

AUGUST, 1896.

ORIGINAL COMMUNICATIONS.

INTRA-PERITONEAL HÆMORRHAGIC CYSTS.*

BY GILBERT BARLING, M.B., F.R.C.S.

Mr. President and Gentlemen—

The cases, three in number, which I wish to bring before you to-day, are all examples of cysts containing as the main constituent blood, but having in one an admixture of urine and in another pancreatic fluid. The exact relation of these cysts to the viscera of the abdomen is to some degree conjectural, as happily all of the patients were cured by operation, and it is only by *post-mortem* examination that their point of origin could have been positively determined. This much, however, seems clear, that they commenced behind the layer of peritoneum lining the posterior wall of the abdomen or some of its reduplications, and projected this layer forwards, so that it formed the external wall of each of the cysts, and they probably owed their origin to injury or to severe exertion.

The following is an account of the cases :—

Case 1.—R. W., aged 54, came under my care at the General Hospital, April 27, 1889, with a large tumour occupying the the front of the abdomen on the right side. It extended upward nearly to the costal arch, downward to the brim of the pelvis, and nearly to the middle line, but did not present at all

*Read at the Birmingham and Midland Counties Branch, Nov. 14. 1895.

distinctly in the lumbar region. Palpation gave the impression of a very tense cyst; there was no resonance over the front of it, such as usually exists in renal tumours. The skin and subcutaneous tissues moved freely over the tumour, but the muscles were tightly stretched over it, giving the impression that the swelling might be intra-muscular. The history was as follows:—About two years before the patient's admission his wife, when getting into bed, slipped and knelt on his right side with some force, causing very severe pain for a short time. Eighteen months later he noticed a swelling in this situation as large as an orange. This slowly increased in size until the last few weeks, during which time the increase in size had been rapid. The patient, formerly a fat man, had lately lost flesh rapidly.

The urine for twenty-four hours was 43 ounces, specific gravity 1,020, acid, without deposit, and free from albumen and sugar.

April 30.—An incision four inches long was made over the most prominent part of the tumour, and on opening the abdomen a dense white capsule presented itself. The hand passed into the abdomen failed to find any intestine in front of the cyst, the limits of which, easily determined from the liver above, could not be defined in other directions, though the wide base evidently occupied the region of the kidney. A large trocar emptied 72 ounces of cocoa-like fluid, with a slight urinous odour, and containing a large quantity of cholesterin. Subsequent examination showed that this fluid contained ·5 per cent. of urea. An incision was then made through the very dense wall of the cyst, which was fully one-third of an inch thick, and the cyst edge was stiched to the abdominal wall, a drain being inserted. Before this was done about another 20 ounces of fluid escaped, containing bits of dark brown material, the size of marbles, evidently old blood clot, and a layer of this material lined the inside of the cavity.

For the first few days all went well, the cyst being carefully irrigated twice a day, whilst there was a free discharge evidently consisting partly of urine, with pieces of old blood clot. The

discharge then became very putrid, the temperature was considerably elevated at night, the patient got much thinner. There were profuse sweatings, and the urine passed by the urethra diminished in quantity until it fell to as low as 16 ounces, with 0·75 per cent. of urea, and it was constantly alkaline. The cyst was at the same time steadily shrinking, and as I could not but feel that nephrectomy under these conditions would pretty certainly prove fatal, I refrained from further operation. By the beginning of July matters had begun to mend, the temperature was practically normal, the urine rose to between 20 and 30 ounces, with increase in the amount of urea, and its reaction was acid, whilst the discharge, which was less offensive, diminished considerably.

October 30th, 1889.—The patient left the hospital, with a sinus still discharging, but otherwise he was well. The urine passed was 50 to 60 ounces in twenty-four hours, specific gravity 1,014 to 1,020, acid, with no abnormal constituent.

He went to work despite the sinus which persisted for two and a half years, but which eventually closed after the extrusion of an irregular mass, probably a bit of blood clot infiltrated with uric acid. Although the history of injury was remote from the time at which the tumour was first noticed, yet with the contents and relations I have described it is hardly possible to do otherwise than conclude that the cyst was the result of traumatism. In a man so stout as this patient evidently was at one time, it is likely that a swelling even of considerable size might be overlooked for a long while.

My explanation of the origin of the cyst is as follows:—The injury referred to lacerated the kidney substance, the split either not running into the pelvis, as no blood was seen in the urine, or if it did, the ureter was plugged with clot. Hæmorrhage then, with retained urine, distended the tissues around the kidney. After the operation, when the cyst was suppurating profusely, the urine passed from the bladder became ammonical, and contained phosphates and bacteria, so probably a communication was established between the pelvis of the kidney and the

cyst, though it did not remain permanent, as the urine was for a long time acid, and free from phosphates, &c., whilst there was still a purulent discharge from the sinus.

The case is a marked example of the advantage of exploratory operation within the abdomen. It was undertaken purely on these lines, with a hope, rather than a belief, that the tumour was not malignant.

Present condition :—The patient is in good health, without any sign of tumour at the seat of operation, but he has a hernia there.

Case 2.—A.N., male, aged 53, a blacksmith by occupation, was admitted to the General Hospital September 5th, 1893, under the care of Dr. Simon, and subsequently transferred to my care.

Six months previously he had noticed a swelling commencing in the epigastrium, which, as it enlarged, extended downwards. For about three weeks before the appearance of a tumour he had suffered from pain in the epigastric region. When in hospital the conditions found were as follows :—A rounded swelling occupied the central area of the abdomen, extending about as far below as it did above the umbilicus. It was dull all over to percussion, fluctuated throughout, descended somewhat with deep inspiration, but appeard to be fixed at its base deep within the abdomen.

Apart from the tumour the patient was in good health, none of the viscera showing any evidence of disease, but loss of weight was complained of.

When the history of the case was first taken, no evidence of injury to the abdomen was obtained, but subsequently the patient recollected that some months previous to his admission, when at work in his forge, a "set" of considerable weight slipped, when another man was striking, and hit him a severe blow in the middle of the abdomen. The following days he felt discomfort there, and then suffered from indigestion, for which he consulted a doctor, who eventually examined him and felt a tumour in the abdomen.

Operation, September 11th, 1893 :—The abdomen was opened by an incision just to the left of the middle line, the centre of this was at the umbilicus. The front of the cyst was found adherent in patches to the parietal peritoneum and to the great omentum. The latter was separated and the cyst partly emptied by trocar, 95 ounces of thin brown red fluid being evacuated. The cyst was then incised, and a quantity of similar fluid with old blood clot, estimated at two to three pints, was collected. The cyst was then stitched to the abdominal incision and some further blood clot, a thick layer of which lined the cyst, was removed. There was no bleeding. The after history was uneventful, and at the end of three months, during which time the patient gained a stone in weight, only a deep sinus was left. Three months later by keeping the orifice of the sinus patent sound healing was obtained.

Present condition. The man is in robust health, without any thickening to be felt at the seat of the cyst, and with no yielding of the scar.

Examination of the fluid for pancreatic ferment, urea, and hydatid elements gave a negative result: the material collected appeared to consist of old blood only.

In this case, as in the preceding one, it seems unreasonable to dissociate the occurrence of the hæmorrhagic cyst from a somewhat remote injury. As to the exact locality the blood occupied, it is impossible to speak positively, but from the location of the base of the cyst on the vertebral column, from the way in which it commenced, and from the *post mortem* records of somewhat similar cases, it is probable that it arose behind the ascending layer of the transverse meso-colon.

Case 3.—A. B., aged 29, married, was on August 2nd, 1894, delivered of a still-born child at full term. She stayed in bed 10 days, and on getting up began to suffer attacks of pain in the epigastrium going through to the back and lasting from one to three hours; these came on about once a week, sometimes in the day, at others in the night, and she began to notice that her abdomen was getting bigger than usual. At the end of six

weeks vomiting came on, and the pain was so severe that the patient sought medical advice and obtained medicine which for the time being relieved the pain. It was not however till the end of November that it was discovered she had a tumor in the abdomen. December 22nd, she had a bad attack of pain, lasting 3 days, which determined her to come into hospital.

On admission December 27th, 1894, she was suffering from severe pain and was a good deal collapsed, T. 97·5, P. 128, R. 37. She lay on her right side with her legs drawn up and breathing with pain.

The abdomen showed a large tumor almost centrally situated but extending more above the umbilicus than below it, and rather more on the left than on the right side, this sloped off into the flanks and epigastrium. It was dull and fluctuating. The dulness at the upper margin extended through the epigastrium to the liver dulness. There was dulness in each flank, that on the right side continuing into the liver dulness and on the left into the splenic dulness, but this dulness on each side disappeared on turning on to the opposite side. Posteriorly, there was an area of dulness on each side, that on the left extending from the level of the 9th D.V. to the 7th rib in the mid-axillary line where it met the dulness just described; that on the right extending to the 11th D.V., and shading round the chest to meet the liver dulness; breath sounds were deficient on both sides posteriorly.

There was no evidence of anything abnormal in heart or kidneys.

Operation December 31st. A vertical incision was made somewhat to the right of the middle line over the most prominent part of the tumour above the umbilicus. Inflamed omentum presented which was so widely adherent to the front of the tumour that it was found easier to go through it than to strip it up. When the omentum was divided and stripped somewhat, a yellowish white dense wall appeared. The hand passed into the abdomen could not define the upper limits of the tumour, but it appeared to be connected with the liver. A

trocar and cannula inserted into the cyst drew off altogether 40 ozs. of fluid. At first this was clear, almost like serum with a slightly green tinge, then it became reddish brown and the greater part appeared to be old blood. The cyst was then incised and some old blood clot removed, a layer of this lining the cyst; the wall of the cyst was then stitched to the incision in the parietes. At this time there was very free hæmorrhage from the deep part of the cyst, fresh blood welling up rapidly as though from a vessel of considerable size, but without pulsation. A tube was placed in the centre of the incision and the cyst cavity, carefully and firmly packed with gauze; with this the hæmorrhage ceased.

During the first 12 hours following the operation the patient suffered severely from collapse, due, doubtless, to the rapid loss of blood after the cyst was freely opened, but subsequent to this the progress to recovery was uninterrupted.

A sinus remained until the end of May, and once or twice gave trouble from the tendency of its orifice to close with resulting small collection of pus in the deeper part. This was, however, easily remedied, and since May the wound has remained healed.

Dr. Stanley, Pathologist to the General Hospital, made the following report on the fluid. "Amount about ʒxl, containing a large quantity of blood clot. The serous part is feebly alkaline in re-action, s.g. 1,015, slightly albuminous. When treated with solution of soda hypobromite it gives a well marked frothy re-action, and the gas given off has negative properties, and appears to be nitrogen. When heated, the fluid gives a distinct biuret re-action with a solution of copper. When heated with a weak solution of starch in a water bath, and then treated with warm Fehling solution the latter is reduced. Fibrin digested in the fluid at 34 C. is apparently unaffected, but another sample digested in the fluid with some Soda Bicarb is softened and partially dissolved. The fluid would, therefore, seem to contain a proteolytic ferment and a starch converting ferment. The urea (which is probably present) may be due to the amount of blood."

Present condition of patient:—She is in robust health and the scar remains healed. There is, however, some hernial tendency, possibly owing to the fact that she is six months pregnant.

Looking to the position occupied, and to the report of the nature of the fluid, it seems probable that this was an example of "Pancreatic Cyst." These cysts have excited a good deal of attention during the last few years, and several points have been specially discussed, viz.:—(1) Whether the term Pancreatic is justified; (2) Where the fluid is located, that is, whether it is in a specially developed cyst cavity or occupies that already provided by the cavity of the lesser omental sac, and (3) what is the cause of Pancreatic Cysts?

With regard to the name, clearly it should be reserved for those cases in which the presence of the proteolytic ferment and a starch converting ferment is present, and this test would limit somewhat the list of those cases hitherto published.

With regard to the exact locality occupied by the fluid, it is not possible to speak positively without a careful investigation, such as is not to be made during an operation, and can only be furnished by *post-mortem* examination. Reference to reports thus obtained shows that in certain traumatic cases an extensive hœmorrhage has taken place into the lesser peritoneal sac, rapidly producing a large tumour. This, however, does not justify the conclusion that all cystic tumours lying behind the stomach and closely associated with the transverse colon and pancreas are contained in the same cavity, especially if they are produced slowly. Some of them have been shown by dissection to occupy the base of the transverse meso-colon, and one recorded by Dr. Isambard Owen in this situation extended upwards so high as to displace the liver and the diaphragm. This case in itself is sufficient to show that dulness at the base of the left chest, one of the signs upon which stress is laid in diagonising collections in the lesser peritoneal cavity, is not sufficient to diagnosticate between such collections and those originating behind the layers of the transverse meso-colon.

In the causation of cysts in the region under discussion injury plays an important part. In a third, or even more of the cases, traumatism more or less severe was suffered. But this leaves the origin of the majority still unexplained. Cystic and degenerative charges in the pancreas with subsequent hæmorrhage into them have been suggested in other cases, but there is very little evidence obtained in the *post-mortem* room to support this theory.

Referring to my third case for a moment, it will be remembered that symptoms showed themselves a few days after the birth of a child. I have entertained the suspicion that the violent expulsive efforts of parturition, by the impulse thrown upon the systemic veins, may have caused a rupture of one of these, such as the azygos vein, with extravasation into and slight tearing of the pancreas, and so leaking of its secretion into the blood collection. From the severe hæmorrhage at the deepest part of the cyst after it was incised it was clear that some considerable vessel opened directly into it.

What is the fate of these blood cysts in the abdomen if left untreated? Some of them remain for years without seriously inconveniencing the patients. Much more commonly, though, they give rise to difficulty in digestion, and cause pain and illness by inter-current attacks of peritonitis. At least one has caused a fatal peritonitis by rupturing into the belly cavity, and three or four others have ruptured into the intestine, whether with or without suppuration is not clear, but in each case recovery followed.

Operative relief has been attempted in five ways—(1) by simple tapping, (2) by tapping and injection with various irritant fluid, (3) by enucleation (4) by laparotomy and stitching of the opened cyst to the abdominal wall, and (5) by posterior incision.

1. Tapping has occasionally produced a cure at the first emptying, but more often it has had to be repeated, and in some cases it has failed to cure. Apart, however, from its efficiency there is a strong objection to tapping from the many disasters

which have followed the partial emptying of abdominal cysts by this method, owing to the leaking which has taken place from the puncture setting up fatal peritonitis.

2. Tapping, followed by injection, stands condemned by the severe mortality which has attended it.

3. Enucleation must, from the relations of these cysts and their method of formation, be a very difficult and hazardous proceeding, and one which goes beyond the necessities of the case. The largest number of enucleations of which I have seen any account is in a paper of Krecke's quoted by Leith,* in which six enucleations are recorded with three deaths, a mortality quite prohibitive looking to the safety and efficiency of the method next to be mentioned.

4. Laparotomy, with stitching of the opened cyst to the abdominal incision has been adopted in the majority of the cases published with very excellent results. Krecke recording 27 cases, all ending in recovery, though this is probably a better result than would be shewn from a complete record of all the cases that have been operated upon by this method. The one drawback to Anterior Laparotomy is the imperfect drainage and the prolonged existence of a sinus in many cases, among which mine may be included. This difficulty has been met by a counter opening posteriorly for drainage, with advantage apparently. A persistent sinus is likely to remain only in those cases where the cyst is in communication with a viscus, such as the pancreas, one of the main ducts of which is stenosed by cicatricial tissue.

5. Posterior incision without laparotomy has been proposed and in one case at least has been adopted. To carry this out, a vertical incision is suggested to the outer side of the left erector spinæ, below the last rib. The kidney is then felt for, and its vessels exactly defined. By blunt instruments, a drainage tube can then be passed, either above or below these vessels into a cavity in the neighbourhood of the tail of the Pancreas, such as a distended lesser omentum. In many of the

**Lancet*, September 28, 1895.

recorded cases of pancreatic and similar cysts this proceeding is doubtless feasible, but looking to the relations of the large vessels in this situation, it is probable that this operation has its own dangers, as the deeper tissues are invaded without the operator being able to determine exactly what he is going through. In cysts not centrally situated, such as my first case described, this posterior operation would be unsuitable. I think, on the whole, that operation by laparotomy will be the generally adopted treatment for the future, mainly because the diagnosis of such cysts as I have been discussing is uncertain, and only by opening the abdomen can it be safely completed, and at the same time the cyst dealt with.

I should like to express my indebtedness to two excellent papers on this subject, one by Dr. Theo. Fisher, in the Guy's Hospital Reports, 1892; the other by Dr. R. F. C. Leith, already referred to.

VAGINAL OPERATIONS ON THE UTERUS AND ADNEXA.

BY THOMAS WILSON, M.D. LOND., F.R.C.S. ENG.
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THE treatment of affections of the female reproductive organs is still, as it always has been, subject to the mutation of fashion. At one time, as a result of the rediscovery of the speculum, the majority of women are found to be affected with ulceration or erosion of the cervix, for which a long course of caustic applications is required. At another time a "normal position" of the uterus is evolved, and forthwith every woman confiding herself to the care of an up-to-date practitioner is found to have the fundus of her uterus in front of or behind its proper place, or failing this, to have "falling of the womb": in any case support by some sort of pessary is required. Then again, a large number of wombs are found to have some part of their canal too

narrow, and have to be widened by cutting or forcible dilatation; and anon it is discovered that in childbirth there is laceration of the cervix which lies at the root of all future evils: the lacerations must be repaired, and some years spent in proving how unnecessary this is in all but rare instances. Then the removal of large ovarian tumours by abdominal section is found to be practicable, and this, together with the consideration that spaying of certain women was a routine custom among some nations in the past, and still is in some uncivilised countries, leads to the extension of abdominal section into many other classes of the diseases peculiar to women. This mode of treatment, like all the others, has been extended too far, but the exact knowledge of pathology attainable by its means ought to lead, and it may be hoped will lead, to gynæcology becoming a science as well as an art.

The turn of the wheel has now brought into the fore front of fashion those operations on the uterus and its surroundings which are able to be performed through the vagina, and the number and variety of these operations, more especially in Germany and America, become daily more remarkable, not to say astonishing. It was calculated a little while ago that in Berlin alone in the last year or two a thousand cases of vaginal fixation of the uterus had been done. The pessary in its day can hardly have beaten this.

It must be admitted that these operations are being done to much too great an extent, but it also must be allowed that as statistics prove that the operations can be done safely, it is the duty of every practising gynæcologist to try to define for himself and his patients the limits and exact indications of each operation. In every change in practice a certain amount of real progress is found to be made, and it is true in this as in everything else, that those who never make mistakes never make anything.

The first question that comes up for consideration has to do with the relative advantages and disadvantages of operations carried out by the vaginal as compared with the abdominal

method. Which route is to be preferred in dealing with disease which is equally accessible by either? The answer is that the vaginal is unhesitatingly to be chosen where possible, for many reasons. The degree of shock after even a prolonged operation *per vaginam* is claimed to be very much less than in abdominal sections. This is explained by the facts that the bowels do not escape from the wound, while blood readily comes out, and thus in the first place the abdominal contents, and especially the intestines, are much less exposed to the cooling and drying influence of the surrounding atmosphere; and in the second, the intestines are not disturbed by rubbing or by manipulation carried out in their midst. The absence of an abdominal scar abolishes the risk of ventral hernia, which supervenes in a considerable percentage of cases of laparotomy. In Jacobs' clinic at Brusssels 38 cases of ventral hernia arose in 257 laparotomies; 12 per cent in 216 cases were observed in the best series recorded by Winter; and Gallet in 93 cases found 16 herniæ, of which 11 were operated upon. There is further no risk of an abdominal fistula remaining as the result of an infected ligature, or from the septic stump of the tube; and the patient is not compelled to wear an abdominal belt for an indefinite period. When purulent collections are opened the matter escapes without fouling the general peritoneal cavity, and there is much less risk of a fatal infection. In cases where drainage is necessary it is more easily provided for by the vagina. The duration of the healing process, and thus of convalescence, is shorter after vaginal operations, and the patient can earlier return to work. The fear of operation is said to be less, and the post-operative pain smaller than after laparotomy; my own limited experience has not shown this to be so. The mortality of the vaginal operations is also held to be smaller, but it is difficult to get collections of cases which are strictly comparable.

The adherents of laparotomy claim that in that method a fuller examination is allowed in diseases of the appendages of the uterus. This examination may be made by inspection and palpation. As regards inspection a large incision and a good light

are required, and the raised pelvic position of Trendelenburg may be employed as an auxiliary; by these means a good view of the uterus, ovaries and tubes can be obtained, but it has been proved to be equally possible in many cases to bring any of these organs through a vaginal incision and expose them to the light of day. Palpation can be carried out equally well in either method. There does not seem therefore to be much weight in this objection. It is in the next place objected that adhesions of omentum, intestine, or other structure, to the parts to be removed, are less easily dealt with in the vaginal operation than in laparotomy; there appears to be some force in this argument. Further, hæmostasis is held by some to be more certain and easy in laparotomy, but in this respect honours are easy; the uterine arteries are more easily dealt with per vaginam, and the ovarian vessels by the abdominal method. The last and most formidable indictment against the vaginal operations is the danger of injury to important structures, the ureters, bladder, and intestine, and this danger seems to be a very real one. The number of utero-vaginal fistulæ caused by these operations is already large, and a wound of this structure is one of the most dangerous accidents, both in its immediate and remote effects, that can occur in pelvic surgery. Wounds of all these structures also occur in abdominal operations, but there is a better chance of avoiding them.

It may be noted that nothing has been said about the risk of sepsis, except in suppurative cases. In non-suppurative affections the risk is not greater in vaginal than in abdominal operations. It has been proved that it is at least as easy to render and keep the vagina surgically clean as to free the skin of its septic and infective organisms. In suppurative cases, as has been observed, an advantage is claimed for the vaginal method.

To sum up shortly, the chief advantages of the vaginal operations are the diminished shock, and the abolished risk of ventral hernia; and the main disadvantage is the somewhat greater risk of injury to ureter, bladder, and intestine.

GENERAL INDICATIONS.

What, in the next place, are the conditions for which operation is necessary, and for which the vaginal route is suitable? These include affections of the uterus, of the Fallopian tubes, the ovaries, of Douglas's pouch, and of the parametrium. The indications will be more fully gone into under the head of each operation, but a general list may be useful here. Among the affections of the uterus are the new growths, cancer and other malignant tumours affecting the cervix or the body, and many cases of fibro-myoma; certain cases of retroversion and prolapse; and some cases of chronic inversion. The simple inflammatory affections of the Fallopian tubes may be attacked in this way, as may also the cystic swellings, hydrosalpinx, pyosalpinx, and hæmatosalpinx, and certain cases of tubal fœtation. Among the diseases of the ovary may be enumerated cases of chronic inflammation and of prolapse of the organ requiring surgical interference; cysts, parovarian, glandular, or papillomatous, so long as they have not risen out of the pelvis; solid tumours and dermoids not exceeding the size of an orange. Collections of fluid—pus, blood, or serum—distending Douglas's pouch, and certain cases of abscess and of hæmatoma of the broad ligament, are also among the commoner affections which are suitable to be attacked by this route. Finally, there is a group of cases of diffuse suppuration of the pelvic contents, in which collections of pus are found scattered to a greater or less extent through the connective tissue, peritoneum, tubes and ovaries, all which structures are at the same time much thickened with inflammatory exudation, and matted together. This group can be much more safely attacked by the vaginal route than by the abdominal; operations belonging to the latter group having been attended by a very large mortality.

ANATOMY.

Before enumerating the various operations which can be carried out on the uterus and its adnexa through the vagina, it will be useful to recall the anatomical relations.

The Vagina.—The vagina, varying between three and four inches in length, has the upper third of its anterior wall occupied by the insertion of the cervix uteri; about the middle third of the anterior wall is separated by loose connective tissue from the base of the bladder, while the lower third has the posterior wall of the urethra inseparably united to it by dense fibrous tissue. The posterior wall is covered in about its upper fourth by the peritoneum of Douglas's pouch, so that here the partition between the vaginal and peritoneal cavities is thin. Below the peritoneum the posterior vaginal wall is loosely attached to the rectal wall by connective tissue, except for about half to three-quarters of an inch at the lower end, where it is firmly united to the front of the perineal body. Laterally the vagina is separated by some loose connective tissue from the levator ani, by which it is separated from the ischio-rectal fossa; in cases where the vagina is narrow, room can be gained by making an incision backwards and to one side extending into this fossa. The walls of the vagina are much thinner at the upper part than near the lower end, where they are thickened by the columns and rugæ; they are throughout abundantly supplied with blood vessels, both arteries and veins, so that they bleed freely when divided.

Pelvic Connective Tissue.—When the vaginal wall is cut through close to its reflexion from the cervix, a thin layer of loose connective tissue is entered in front, lying between the bladder and the supra-vaginal cervix; this loose layer enables the bladder to be separated by the tip of the fingers, the end of a pair of scissors, or other blunt instrument. When this separation is made the vesico-uterine pouch of peritoneum is met with at about the same level as the internal os: if the peritoneal reflexion is missed and the separation continued upwards the peritoneum is easily separated from the fundus of the bladder to which it is loosely connected, whilst it cannot, owing to its dense adhesion, be separated from the anterior wall of the body of the uterus. In making the separation, the finger or other instrument should be kept closely applied to the uterus to avoid

wounding the bladder; when the peritoneum is being stripped from the bladder above the reflexion, the two smooth surfaces of peritoneum will be felt gliding over each other on the front of the uterus.

Fig. 1.

The peritoneum is represented by a thick black line; the cavities of the uterus and vagina, bladder, and rectum, are black. The broken lines represent the position of the loose connective tissue between the organs.

On each side of the cervix, when the vagina is divided a large

collection of connective tissue is entered, which contains numerous blood vessels, and is the inner end of a thick layer which extends outwards to the side of the pelvis below the base of the broad ligament. In this collection of connective tissue the uterine artery runs from behind forwards and then inwards to reach the side of the uterus at the level of the internal os, at which point it turns upwards between the layers of the broad ligament. The ureter also courses from behind forwards and somewhat inwards in this tissue; it extends to a rather lower level than the uterine artery, which loops round above it. The ureter in this part of its course is placed at about the same level as the internal os, and is distant from the side of the cervix about two-thirds of an inch. It is capable of being pushed somewhat further to one side at this level by means of fingers placed in front of and behind the broad ligament, the fingers being then pressed towards the pelvic wall while at the same time they are kept in contact with the surfaces of the broad ligament.

Douglas's Pouch.—Posteriorly it has been seen that the vagina is separated from Douglas's pouch merely by the thickness of the vaginal wall and of the peritoneum, with a thin layer of loose connective tissue between them. The rectum is behind and a little to the left, and is in no danger of being wounded provided that the vagino-peritoneal septum is divided in the middle line by an incision kept close to the uterus. Such an incision can be enlarged transversely to a size of at least three inches with safety, and through it the posterior surface of the uterus, the walls of Douglas's pouch, the back of the broad ligaments, with the ovaries and the tubes, can be readily palpated, and the latter organs can be brought down into the vagina and examined visually.

The Broad Ligaments.—After the anterior and posterior openings have been made into the peritoneal cavity and the collections of connective tissue at the base of each broad ligament containing blood-vessels have been ligatured and divided, the uterus remains attached only by the broad ligament on either

side, with the round ligament near the upper part, and the utero-sacral ligament at the lower part of each. The broad ligament, as it is usually described, can be seen when it is spread out to be naturally divided into two portions by the attachments of the ovary. This organ is attached to the uterus by the ovarian ligament, which is 1 to 1½ inches in length, and runs between the layers of the broad ligament to join the inner and lower end of the ovary. To the back of the broad ligament the ovary is attached by a double fold of the peritoneum of the posterior layer of the ligament, the mesovarium. Externally, the upper and outer end of the ovary is connected to the side of the pelvis by a free portion of the upper border of the broad ligament, which encloses the ovarian vessels as they run inwards from the iliac fossa to enter the broad ligament; this is called the suspensory ligament of the ovary or ovario-pelvic ligament. These three attachments—the ovarian ligament, the mesovarium, and the ovario-pelvic ligament divide the mesosalpinx above from the broad ligament proper below. It is the latter portion that is implicated in removal of the uterus; the former in the removal of the affections of the Fallopian tube. In removal of ovarian tumours and cysts the mesosalpinx and the upper part of the broad ligament proper are removed.

The broad ligament proper is attached internally to the side of the uterus as far downwards as the internal os, externally to the wall of the pelvis in a line running from a point situate about midway between the sacro-iliac synchondrosis and the ilio-pectineal eminence, downwards and backwards to about the level of the ischial spine. The upper border may be looked upon as marked off by the attachments of the ovary as above described; the lower border is ill-defined, the two layers of peritoneum which form the ligament separating below, the anterior turning up over the bladder, and the posterior becoming continuous with the peritoneum lining the wall of the pelvis and with that in Douglas's pouch. This portion of the broad ligament contains the large vessels going to the uterus, the ovarian running inwards near the upper border, about the level of the mesovarium, and the uterine running upwards close to the

uterine attachment, and joining the ovarian at the upper and inner angle of the ligament.

The round ligament runs for the first part of its course between the layers of the broad ligament proper and near the upper border of this. The utero-sacral ligament is a collection of connective tissue containing some smooth muscular fibres and extends on either side from about the level of the internal os upwards and somewhat backwards to the front of the second and third sacral vertebræ; the connective tissue forming them is continuous with the collection at the side of the cervix and base of the broad ligament. The ligaments make prominent a fold of the peritoneum by which they are covered; this fold has been called Douglas's fold, and forms the boundary between the posterior layer of the broad ligament and Douglas's pouch. The utero-sacral ligaments are concave inwards, and are placed one on each side of, and close to, the rectum.

When the broad ligament is divided from below up at a distance of about half an inch from the uterus, as in vaginal hysterectomy, the uterine artery is secured at or a little below the lower limit of the ligament; at the upper part the round ligament, the ovarian ligament, the ovarian vessels, and finally the Fallopian tube, and the mesosalpinx at its inner pointed extremity, are divided When the tubes and ovaries are removed at the same time as the uterus, the broad ligaments are divided along a line which runs obliquely from near the lower and inner angle to the outer and upper; in doing this the uterine vessels are secured at the lower portion of the ligament, and the ovarian vessels with the ovario-pelvic ligament are divided at the highest portion of the ligament; between the two sets of vessels is a thin portion of the ligament which does not contain large blood-vessels or other important structures.

ENUMERATION.

The operations performed on the uterus and its appendages through the vagina have been described under many different and more or less appropriate designations. They may be divided first into two main groups: (1) vaginal hysterectomy, in which

the uterus is removed, and (2) vaginal cœliotomy, in which the peritoneal cavity is opened, the uterus being left *in sitû*. For the second group of operations, the terms vaginal laparotomy, colpotomy, elytrotomy, and various combinations of these have been suggested, but on the whole the expression *vaginal cœliotomy* appears to be the most euphonious, accurate and descriptive. The peritoneal cavity may be entered through the anterior fornix of the vagina in front of the uterus, by *anterior vaginal cœliotomy*, or through the posterior fornix into Douglas's pouch, by *posterior vaginal cœliotomy*. The vaginal cœliotomy may be simply exploratory; or it may be used to fix the uterine fundus anteriorly, in which case the operation is called vaginal hysteropexy or vaginal fixation of the uterus; or it may be done for the removal of the appendages, or of tumours connected with them; or it may be required to give exit to collections of fluid.

The operations and their indications may be tabulated thus:

I.—*Vaginal Hysterectomy*—

- *a.* Fibromyoma.
- *b.* Cancer of—*α*, body; *β*, cervix.
- *c.* Certain cases of pelvic suppuration.

II.—*Vaginal Cœliotomy*—

A. Anterior—

- *a.* Operations for backward displacements and prolapse, of which the chief is *vaginal hysteropexy*.
- *b.* Removal of fibro-myoma in *vaginal myomectomy*.
- *c.* Small ovarian tumours—*vaginal oöphorectomy*.
- *d.* For tubal affections.

B. Posterior—

- *a.* Operations for uterine displacements, especially shortening the utero-sacral ligaments.
- *b.* For ovarian tumours.
- *c.* For tubal affections.
- *d.* For collections of fluid in Douglas's pouch.

(To be continued.)

THE PHYSIOLOGY OF THE SUPRARENAL BODIES.

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WITHIN the last few years our ideas upon the nature of secretion have had to be considerably extended, and, in some aspects, materially modified. The "ductless glands" were at first considered as anomalous structures, but we now know that several organs—such as pancreas, liver, kidney, and possibly others—have, in addition to their ordinary well-known "external" secretion, an "internal" secretion; that is, they manufacture some material which is poured out into the blood or lymph-stream.[1] This internal secretion may in some cases be assigned as the function of the "interstitial" material which is found in certain glands.[2] Thus we have glands consisting of two different kinds of secreting structure, one of which secretes externally, the other internally.† This conception will pave the way for what I shall have to say about the functions of the suprarenals later on.

It will be useful, before proceeding further, to briefly summarise what is known about the comparative anatomy of the suprarenal bodies.

Ascending the vertebrate scale nothing certain is known of suprarenals until we come to the Elasmobranch Fishes,* and

† It is not, however, necessary to postulate a separate structure to produce the internal secretion. There is no tissue in the body but what may alter the chemical condition of the blood and lymph which flows through it, and thus internal secretions may be regarded as the rule, not the exception.

* In *Amphioxus* nothing of any kind has so far been described as suprarenal. In Cyclostomes "whitish specks" have been described in connection with the posterior veins of the body in *Ammocœtes* (Rathke, "Beiträge zur Geschichte der Thierwelt," 4te Abth., s. 99. Halle, 1827). I am at present investigating this subject. (*v.* Collinge and Vincent, Anat. Anz. In the Press.)

here we find the two original secreting organs from which the compound suprarenal capsule of higher vertebrates has been developed. One of these consists of a paired series of whitish glands in intimate connection with branches of the aorta and the sympathetic chain. The other is an elongated yellow body, median or paired, in the region of the hinder portion of the kidney. Both these appear to be secretory, although the latter has the most distinctly alveolar arrangement. The first corresponds to the "medulla" of higher vertebrates, the second to the cortex.

In Ganoids the cortical part only appears to be represented, and in my opinion the same applies to Teleosts,[3] although it has been held that the suprarenals in these fishes are only "medulla."[4] In the Dipnoi there is a glandular-looking tissue around the kidney, but whether this is really a representative of one or other portions of the suprarenal is at present doubtful.

In Amphibians we again get the two parts of the organ represented, but here for the first time we find them, instead of existing as separate and distinct structures, combined in one body, which consists of a yellow streak along the ventral surface of the kidney.

In Reptilia the suprarenal is in close connection not with the kidney, but with the reproductive gland. I have given elsewhere a description and drawings of this body in amphibians and reptiles.[5] In Birds the same sort of arrangement obtains.[6] The structure of the Mammalian suprarenal is too well known to need description, but it is perhaps worth noting that in all vertebrates below the mammals the terms "cortex" and "medulla" are quite misnomers, as the two kinds of structure are arranged in a more or less irregular manner.

The three zones in the cortical part of mammalian suprarenals were first described by Arnold.[7] Since that time almost innumerable observations have been made on the microscopic structure of the organ. Here I can only give the references to a few of the most recent and most important. These are those of A. Dostviewsky,[8] M. Gottschau,[9] Räuber,[10] and Carlier.[11]

Functions of the Suprarenal Bodies.—To describe in anything like detail the history of the various views which have been held on this subject would occupy altogether too much space. I shall, therefore, content myself with giving some account of those which are the most recent and the most accepted.

The older controversies as to whether the suprarenals are really essential to the organism or are only "fœtal remains," are now of little more than historical interest. Reference however may be made to Brown-Séquard,[12] who held the former view, and to Phillipeau,[13] Gratiolet,[14] and Harley[15] who held the latter. We may consider that the matter has been settled by the more recent extirpation experiments of Abelous and Langlois,[16] Tizzoni,[17] and Schäfer,[18] and that an animal when deprived of its suprarenals will soon die.

The earlier experiments were all in the direction of extirpation and noting the effect upon the animal employed. From such investigations Abelous and Langlois (*loc. cit.*) considered the suprarenals to be excretory organs, and the symptoms after their removal to be due to an auto-intoxication. These symptoms they described as resembling those of curare-poisoning. This view is still held by many French physicians and physiologists. But the material secreted by the gland is certainly not in any respect like those contained in the blood of an animal deprived of its suprarenals.[19]

But a more recent method of research has been by the injecting of extracts of the organ into the blood of animals. The first work of this kind was by Foa and Pellacani[20] and by Marino-Zucco.[21] This last observer thought that the poisonous effect of the injection was due to neurine.

By far the most satisfactory work in this direction has been done by Oliver and Schäfer.[22] These investigators find that the chief physiological effect of suprarenal extract is upon the muscles. The effects, they state, are rather like those of veratrine than curare. Unlike the effect of injection of thyroid extract, the suprarenal injection produces an enormous rise of blood-pressure. This result is due in part to increased heart's

action (when vagi are cut; when these are not cut, heart is slowed), but chiefly to contraction of the arterioles by action of the poison. According to Oliver and Schäfer this is due to direct action on the arterioles, but Szymonowicz[23] and Cybulski[24] consider that the active principle produces its effects on the vaso-motor centre.

Oliver and Schäfer interpret these results as indicating that the suprarenal capsule has an internal secretion, and that the material secreted passes to the muscles and is essential for the maintaining of their normal tone. When the gland is removed or diseased, the effects are seen in an extraordinary muscular weakness due to the absence of this internal secretion. This muscular feebleness is one of the most striking symptoms of Addison's disease; in fact, some physicians make it an important point in diagnosis. Thus Langlois [25] recommends the use of Mosso's ergograph in all doubtful cases. This is a most useful instrument for the study of the process of fatigue by means of a fatigue-curve. The work is recorded graphically, and can be estimated in kilogrammetres. The forearm is fixed by clamps; the hand is also fixed, the index and ring fingers being placed in brass cylinders, while the middle finger is free. This has a cord attached to it passing to the writing-style, and a variable weight is attached. The patient flexes the middle finger, lifts the load, and then the load extends the finger. This is done, say, every two seconds under the guidance of a metronome.[26]

The characteristic curve of Addison's disease shows a total loss of power of sustained muscular effect, and when compared with a similar normal curve, or even with one of phthisis or any other wasting disease, is readily to be distinguished.

As supporting the doctrine of internal secretion may be mentioned the fact that the blood in the suprarenal vein contains the active principle in sufficient amount to produce physiological symptoms. According to Schäfer, one-millionth of a gramme per kilogramme of body weight is sufficient to give results.

What, then, is this potent substance secreted by the supra-

renal capsule and distributed to the muscles to maintain their normal tone? This query has led to many careful investigations upon the chemical nature of suprarenal extract. B. Moore [27] finds there is no proteid present in the extract, no carbohydrate, no fat, nor any alkaloid; so the alkaloids nervine and choline as efficient constituents are out of the question. Paul Manasse [28] has succeeded in more or less isolating a substance from the medulla which turns dark brown on the addition of salts of chromic acid. This material is stated to be very like that found in the liver by Drechsel [29] and called jecorin, but it is not jecorin. Chemistry has, then, so far helped us to the facts that the suprarenal extract contains a substance of a reducing nature, turned brown by chromic acid (unless the capsules have been previously hardened in alcohol); this substance does not belong to the proteids, fats, carbohydrates, or alkaloids.

From a careful investigation of the suprarenal bodies in many animals, representing all the chief divisions of the vertebrate kingdom, I am persuaded that *the organ is a double internal secreting gland.*[30] So that not only may we have glands consisting of an internally and an externally secreting structure, but we have in the suprarenal an example of a gland composed of two separate and distinct internally-secreting portions. But it is to be carefully noticed that in all the above physiological investigations and chemical analyses *the medulla only is concerned.* Nothing, so far as I know, has been made out concerning the function of the cortex Some authors have attributed a blood-destroying function to this part of the gland,[31] but I fancy the results have not been corroborated. However, that the cortex is secretory in some way or other there is no reason to doubt. Its histology throughout fishes, amphibians, reptiles, birds, and mammals is even more suggestive of a secreting function than is that of the medulla. And its secretion will most probably turn out to be of quite a different nature from that of the medulla.

Let us now look for a moment at the two most striking symp-

toms of Addison's disease. These are undoubtedly the ***extreme inability of the muscles to sustain exertion*** and the ***pigmentation*** or ***bronzing of the skin.*** Vomiting is usually given as a third cardinal sign of this disease. But it is often absent, and when present is not in any way peculiar or diagnostic as the other two symptoms are. Vomiting is readily induced by almost any toxic condition of the blood acting upon the central nervous organs. The problem is, then, to explain the muscular weakness and the bronzing of the skin.

The first of these, I fancy, will be clearly explained by the physiological results above described. The medulla of the suprarenal capsules secretes a substance whose chemical constitution is not yet quite ascertained, which is essential for the maintaining of the normal tone of the muscles. When this part of the gland is damaged by disease, this secretion is lacking, and the muscles are unable to sustain the slightest fatigue.

But the pigmentation remains to be explained. The phenomenon consists in the storing up in the skin of pigment material which normally should be destroyed somewhere in the body or eliminated by the urine and fæces. I have stated above that no function of a secretory nature has yet been assigned to the cortex. Now I would venture to suggest that it manufactures and pours into the blood some substance which has the power in some way or other to get rid of pigments. When this part of the gland is damaged, the necessary secretion does not take place, and bronzing of the skin is the result.

This view is supported to some extent by the well-known fact that in Addison's disease there is sometimes the characteristic muscular condition without any pigmentation, and at other times pigmentation without more muscular weakness than can fairly be attributed to the anæmia. One may suppose that in the former case the morbid condition has affected only the medulla, in the latter case the cortex only. But in all advanced cases both signs are present, and *post mortem* one usually finds both cortex and medulla extensively diseased.

But it is more than likely that Addison's disease is not the

only morbid condition in which the suprarenal capsules are at fault. As our knowledge of the physiology of these bodies increases so will our knowledge of their pathology. It is possible that the pathology of some forms of anæmia may hinge upon the deranged structures or functions of the suprarenals. Dr. Douglas Stanley [32] has found that suprarenal extract when administered to patients suffering from pernicious anæmia has increased the number of red corpuscles.

Dr. Rolleston [33] says in regard to the relation of the cortex and medulla to each other—"At the present time the cortex and the medulla of the suprarenal body are generally considered to be distinct in origin, structure, and function. The cortex is regarded as being glandular or hæmatopoietic, and the medulla as being nervous and connected with the sympathetic." I have already sufficiently explained my reasons for looking upon both medulla and cortex as glandular in origin and function. He goes on to quote Creighton [34] to the effect that the distinction between the cortex and medulla of ordinary anatomy is quite arbitrary, as there is no real difference between their constituent cells. "The central part or medulla is only more spongy than the rest." I can only say in this relation that Creighton could never have fallen into this error if he had examined the suprarenals of Amphibians and Reptiles, in which orders the two kinds of tissue are as distinct as possible. I would refer to my drawings of these in Fishes, Amphibians, and Reptiles (*loc. cit.*). Rolleston concludes this part of the subject with these remarks—"From these considerations I should be inclined to regard the suprarenal as a functional whole, the medulla and cortex performing the same work though possibly in unequal degrees, since the cortex very commonly undergoes considerable fatty change. This speculation, based on anatomical grounds, receives strong support from the observation that the medulla alone provides an active extract."

Surely the fact that the medulla provides an active extract while the cortex does not, would rather tend to emphasise the distinction between them. Besides, it is rash to assume because

no active principle has yet been found that there is no such active principle. The material secreted by the cortex is probably so different from that secreted by the medulla that it cannot be extracted by the same means. But I anticipate that some such secreted material in the form of a physiologically active principle will be discovered before long.

To sum up very briefly, I am inclined to regard the mammalian suprarenal somewhat in the following light. *The cortex and medulla are two totally distinct secreting glands* which have become anatomically united *The medulla pours into the blood and distributes to the muscles a material which maintains their tone.* This action is seen both in the voluntary muscles and the involuntary, as the heart and blood vessels, the effect upon the latter leading to a marked rise of blood-pressure when injected experimentally. *The cortex very possibly secretes and passes out into the blood-stream some substance which helps in the elimination of pigment matter.**

ADDENDUM.

Since the above has been in type I have seen Dr. Auld's "Third Report on the Suprarenal Gland and the Causation of Addison's Disease" in the *British Medical Journal* of July 4th. In this communication the writer wishes to emphasise two of his former views as to the suprarenal gland. These are (1) That the medullary portion of the suprarenal gland is its essential constituent, the cortex holding at best a subsidiary position; and (2) that the function of the medulla, or at least one of its functions, is to secrete a substance "colloid" in character, which is transmitted to the blood.

With regard to the medulla, I agree with Dr. Auld; but what

* The researches of McMunn and Auld point rather to a *formation* of pigment in the internal zone of the cortex as the result of the splitt ? up of red blood corpuscles. But it may be that this part of the gland destroys any pigment which is in excess, allowing the rest to pass into the circulation, or possibly performs this function indirectly by means of the above hypothetical secretion. On the other hand certain facts would appear to point to the medulla as the part of the gland which deals with pigments.

is meant by saying that "the cortex holds a subsidiary position"? This can only be interpreted as meaning either that the cortex has no particular function, or that whatever function it has, is of the same nature, though less in degree than that of the medulla. This last would be the view of Dr. Rolleston quoted above. But what is the evidence in favour of this extraordinary view? Simply that so far no one has discovered a separate function for the cortex. No unpredjudiced observer can look at a section of healthy human suprarenal without being struck by the glandular appearance of the cortex. And if glandular, does it secrete nothing? But it may be urged that this glandular appearance is simply the persistent representative of a former actively-secreting gland. But again I would ask, what is the evidence in favour of this? Simply that the nature of the secretion has not yet been made out. Histologically the structure of the cortex is very far indeed from indicating that it has lost its secreting function, and much more investigation is needed before one can conclude that it has no such function.

From what I have stated above it will be seen that the two latest utterances to the medical profession on the subject of the suprarenals, have been, in the matter of the relations to one another of cortex and medulla, at variance with the direct teachings of comparative anatomy and histology. And I would urge that along with physiological and pathological investigations there should be a due regard for the significance of morphological facts.

If I may be allowed a further criticism on Dr. Auld's paper, I should like to suggest that in future one or two good histological drawings would be of infinitely greater value than the very unsatisfactory photographic reproductions he has given us. But for the descriptive letterpress, they might be taken to represent almost anything.

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REPORTS OF CASES.

A CASE OF CARCINOMA OF THE LARGE INTESTINE, IN WHICH PORTIONS OF THE GROWTH WERE PASSED PER ANUM.

BY T. LAW WEBB, M.R.C.S., L.R.C.P. LOND.

G. H., a publican, who had for many years before taking to that business been a puddler, and was always a strong healthy man, was more or less under my observation for the last fifteen years of his life. His family history was good. He gave up the heavy work of puddling thirty years ago in consequence of inguinal hernia of the right side, which was followed eight years ago by a similar trouble in the left groin. He wore a truss, which kept up the ruptures effectively. When I first knew him he was troubled occasionally by an acutely inflamed state of an old fistulous track near the anus. This did not open into the bowel, but never completely healed until about three years ago. His bowels were naturally loose, even when perfectly well, and he usually had them moved twice or three times a day. In March, 1894, he had an attack of acute obstruction of the bowels, not in any way due to the ruptures. Aperients and enemas relieved this, and he was soon well again. However, six or eight weeks later he began to have recurring attacks of acute pain over the pubes, which came on five or six times a day and forced him to stool, when he passed liquid offensive motions of a mahogany colour, frequently tinged with blood, and containing streaks of slime. The relief after each action of the bowels was only of short duration. Sometimes he had ten or twelve stools a day. He had nausea but no vomiting, and was easier standing or walking than sitting down. He considered that his symptoms were due to "wind" and indigestion, and described the flatulence as commencing in the left rupture, from which it roared up towards the spleen and then went

down, when the bowels moved and relief followed. He obtained distinct relief from a pill containing Pil: Hydrarg: and Ext. Belladonnæ, but his stools were always liquid, frequent, and often defæcation was preceded by severe pain. Nothing wrong could be felt per rectum; but after one examination of that region, on December 28th, 1894, he strained a good deal, and passed about thirty ounces of bright red blood unmingled with fæces. For twelve days after this he passed an ounce or more of blood every day. It came before each stool, and quite separate and distinct from the motion. Hamamælis checked this, and he was for a time somewhat better. He complained of a constant numbing pain over the sacrum, began to lose flesh steadily, so that on January 24th, 1895, he weighed thirty pounds less than in January, 1894.

On February 5th, 1895, he had an attack of acute obstruction of the bowel with intense pain, and thought himself dying. After repeated enemas he obtained relief by passing a great quantity of liquid stool of a chocolate colour, with much granular solid matter suspended in it (looking much like fine mahogany sawdust).

On February 6th, after one such motion, he again passed four or five ounces of blood, and at the same time voided "two or three bits of flesh," which, two days after, were shown to me. He was at first alarmed at the appearance of these "bits," but eventually made up his mind that they were portions of a calf's sweetbread, of which he had partaken four days previously! Two of these "bits" I hardened in alcohol and embedded in paraffin, hoping that I might be able to get microscopic sections that would throw light upon the nature of the obstructing growth. As the "bits" had been macerating in tap-water two days before I received them, I did not feel very hopeful that serviceable sections could be obtained. However, thanks to the paraffin method, sections were cut which clearly showed that the "bits" were portions of a carcinoma of the large intestine. Although, owing to the maceration, the epithelium had fallen out of the alveoli in many places, yet in

others the spaces were packed with cylindrical cells, and masses of the cells had infiltrated the muscular coat of the bowel. Moreover, one of the sections displayed fat-tissue invaded by the cancer, so that it would seem as if the disease had already passed beyond the limiting coats of the gut and reached the sub-peritoneal fat. Notwithstanding all this, a marvellous improvement in the patient's general condition took place, due, I take it, to the temporary relief of the intestinal obstruction caused by the tearing away of these portions; for his bowels acted with little or no pain, his nausea left him, and, most wonderful of all, he actually gained flesh and weight. This improvement continued for six months, so that his friends hoped that the diagnosis of malignant growth obstructing the sigmoid flexure was mistaken.

About July, 1895, however, the pain returned, with frequent bleedings, liquid offensive stools, and occasional attacks of acute obstruction. Operative interference of any kind was refused, and the symptoms became more marked. On several occasions further portions of the growth were noticed in the stools. Only once was I allowed to examine one of these, which was too much decomposed to be of any use. Emaciation became extreme, and he died on May 10th, 1896. *Post mortem* examination was not permitted.

The case is of interest, not only on account of its long duration and insidious onset, but also because of the detachment of portions of the growth and the remarkable and long-continued improvement which followed.

I have not had time to refer to published accounts of similar cases; but, judging from the statements of Von Jaksch and other clinicians, it is rarely that portions of malignant tumours come away in the fæces. I imagine it is seldom indeed that they are detected by the physician.

A CASE OF PERI-PETROUS SUPPURATION.

BY J. HAZELWOOD CLAYTON, M.B.,
CASUALTY SURGEON TO THE QUEEN'S HOSPITAL.

Gertrude L., aged 12, was admitted into the Queen's Hospital on February 1st, 1896, with the following history:—

From infancy she had suffered from a purulent discharge from the left ear. Five weeks ago she began to complain of severe headache and during the last fortnight she had had several rigors. For the last two days she had been unconscious, the onset being gradual, and on the evening previous to her admission she was noticed to be paralysed on her right side.

On admission she was unconscious, but would cry out when disturbed. Face pale, tongue moist, pulse 120, respiration 40 and very deep, temperature 104·6°. There was slight swelling over the left mastoid region but no redness. Purulent discharge from meatus. Right hemiplegia. Shortly after admission the mastoid antrum was opened with a trephine, but nothing abnormal was found. The left Rolandic area was then exposed through a second opening about its centre, and through this the dura-mater bulged. An exploring needle was inserted and several drachms of cerebro-spinal fluid withdrawn and this fluid continued to flow freely from the puncture after the removal of the needle. As immediately the condition both of pulse and respiration greatly improved, no further exploration was deemed advisable, and drainage tubes having been inserted the operation wounds were closed.

February 2nd.—Temperature 100·8°, pulse 132, respiration 32. Patient semi-conscious and irritable. Would put tongue out when asked to do so. No paralysis but some occasional twitchings of the right side. Took fluid food well. On the evening of February 2nd, the temperature had fallen to 99°, but the next day it rose again to 104·2° and during the next three days the temperature ranged between 97·6° and 104°, pulse 120 to 160, and although the patient took a fair amount of nourishment her general condition was unimproved.

On February 5th the patient was again placed on the operating table and trephined over the temporo-sphenoidal region, and through this opening an exploring needle was cautiously passed into the cerebral substance in various directions, so that the parts in relation with the temporal bone were carefully explored but no pus was reached. The unhealthy appearance of the mastoid trephine wound suggested the advisability of opening it up and cleaning it. The smell of necrotic bone then became evident, and on further examination a small amount of pus (less than ʒ i) was found beneath the dura-mater at the bottom of the trephine hole, the membrane was incised and a small aluminium drainage tube inserted. No improvement followed, the temperature and pulse maintaining the same high range and the semi-comatose condition continued. Two days later proptosis of both eyes was noticed, and this became more marked during the next few days, but gradually subsided on the right side, but became more marked on the left. There was more or less constant escape of cerebro-spinal fluid from the uppermost trephine hole and a free purulent discharge from the mastoid opening. The left conjunctiva now became chemiotic and the globe was so prominent that it looked as though forced from its socket.

On February 10th three small incisions were made into the conjunctiva, and some serous fluid escaped. The left temporal region and side of face were noticed to be slightly reddened and œdematous. Apparently as the result of the relief of pressure by puncturing the conjunctiva the patient's condition showed improvement; the temperature took a lower range, and the patient expressed her wishes clearly.

On February 13th a distinct sense of fluctuation was obtained over the upper eyelid and external angular process, and on incising this region a quantity of thick fetid pus was evacuated, but the patient became syncopal and died six hours later.

Post-mortem.— Calvarium normal. Inner surface of dura-mater nearly normal excepting at bend of left lateral sinus and at apex of middle fossa on left side. Here the point of left

temporal lobe was adherent. No pus within dura-mater. Brain showed a small abscess, size of half a hazel nut, in extreme apex of left lower temporal convolution, and situate nearest the surface at base of brain. The convolutions over it preserved their shape, but were tinged greenish and their vessels markedly injected. Left mastoid antrum hollowed out surgically and containing much yellow inflammatory material, which had entered also the left lateral sinus, completely plugging it, and had burrowed some distance along the posterior surface of petrous bone between the latter and the dura-mater. On the front surface of the petrous bone there was a similar accumulation of inflammatory products between the dura-mater and the bone, and this had entered the orbit through the sphenoidal fissure. In the orbit pus lay within and among the structures embedded in the Capsule of Tenon, and had also made its way out into the subcutaneous tissue of the left temporal region round the outer angle of the orbit, but apparently still outside the Capsule of Tenon.

PERISCOPE.

NERVOUS DISEASES.

BY DR. SUCKLING.

Duplex Personality.—Dr. Drewry, of Petersburg, Va., reports a case in the *New York Medical News*, April 11, 1896.—Mr. K., aged 50, of splendid physique, in good health, sober, moral and industrious, and for years a town official. One of his relatives, at about the age of fifty, without any apparent reason whatever, went away suddenly out West, leaving his wife and children, and was not heard of for many years. Finally he came back on a visit and remained a short time with his family and old acquaintances, but no explanation was given of his strange conduct. One day, while apparently

in perfect health, without any premonitory symptoms of mental derangement, Mr. K. went to a northern city to purchase goods for his store. While there he transacted a great deal of business, met many old friends, and exhibited no indication of alienation of mind. Starting homeward he registered as a passenger on a certain steamer; feeling very tired he secured a state room to which he at once repaired, changing his linen, etc. When tickets were collected he was missing. He had suddenly and mysteriously disappeared; no one had seen him leave the boat, jump or fall overboard. Mr. K.'s open valise and all his clothes except those he wore were found in his state room. Unusual prominence was given the matter in the public press until finally investigation was abandoned, the theory that he was dead being accepted, and the Court appointed an administrator of his estate and a guardian for his children. His business was purchased by his son, and everything was moving along smoothly when, six months after he was last heard of, he suddenly appeared at the home of a relative in a distant southern city. He was brought home in a partially dazed condition, able to recognise but few of his friends. He was an entirely changed man; the physical and psychical metamorphoses were quite complete. He had reduced in weight from 250 to 150 pounds, and was very feeble He wore the same suit of clothes he had on at the time he disappeared, and had in his pocket the check and key which were given him on the boat. He was at once put under treatment, and within four weeks recovered his previous bodily and mental health, and has since conducted his old business with his accustomed skill and industry. A day or two after his return home an abscess, deep down in the auditory canal, broke and discharged a large quantity of sanguino-purulent matter. Immediately thereupon improvement began and went on rapidly.

Mr. K.'s own account of this strange case is as follows:— "I was feeling very tired, thoroughly fatigued after a very busy day in the city, so went to my state room immediately upon going aboard the boat and changed my clothes. Up to that time I was

thoroughly conscious, but after that I recall nothing; all was oblivion till six months later, when I came suddenly to myself in a distant city in the South, where I knew no one. I found myself driving a fruit wagon on the street. I was utterly astounded. Why I was there, how I got there, when I came, and what I had been doing were puzzling questions to me. Upon inquiry I learned that I had been there and at work for some time. My life since I was in that state room, six months previously, had been an absolute blank to me. I can give no account of myself during that period of time. I recall nothing. I started at once for Virginia, but on the way I again lost consciousness, though only for a day or two." He could not tell where he had lived in that Southern city, or the name of any person he had known there. Nothing definite has been ascertained regarding his life during his second consciousness. There are two points of special interest in this case—first, the inherited tendency to eccentricity, if not to insanity; second, the abscess in the ear, the healing of which was followed by a rapid return to normal mental health.

Dr. Drewry gives the following references to the condition:—

"A Case of Epilepsy and Double Consciousness," by Dr. Trowbridge.—*Medical News*, February, 1891.

"A Case of Double Consciousness," by Richard Hodgson, LL.D., Boston.—Proceedings Society for Psychical Research, July, 1891.

"Triple Personality," by Dr. Rosse, Washington.—*Journal of Nervous and Mental Diseases*, March, 1892.

"People who Drop Out of Sight," by Dr. Osborne.—*Medico-Legal Journal*, June, 1896.

"Duplex Personality: its Relation to Hypnotism and to Lucidity," by Dr. Mason.—*New York Jour. of Am. Med. Association*, November 30, 1895.

"Dual Personality," &c., by Dr. Bruce.—*Brain.*

Vertigo of Naso-Pharyngeal Origin.—*New York Medical News*, May 23, 1896.—Dr. Scheppegrell describes a case of severe vertigo due to chronic inflammation of the naso-pharynx,

and resulting in defective respiratory function of the nose. After treatment of the electro-cautery the patient completely recovered.

Habit Chorea.—Dr. Sinkler read an essay upon this affection at the meeting of the Association of American Physicians, held in Washington in May last. He laid stress upon the necessity for seeking for any local cause such as refractive errors, nasal, and naso-pharyngeal disorders, local disturbances anywhere, and the removal of these before any medicinal treatment is attempted. Change of air and arsenic he finds most useful, especially combined with the modified rest treatment.

Tic Doloureux.—Dr. C. L. Dana, of New York, recommends for this affection (1) massive doses of strychnia hypodermically, (2) tonics, (3) rest in bed with a nearly liquid diet and large amounts of diluent drinks. The strychnia he begins at one-thirtieth grain and rapidly increases up to one-sixth to one-fourth grain per diem, until slight toxic symptoms are produced. He was surprised to find a markedly anodyne effect from these large doses, and often a somewhat somnolent condition with a stronger and slower pulse. The relief of pain following the injections was so marked that patients would ask to have them repeated. The tonics consisted of heavy doses of potassium iodide and iron. The rest in bed was one of the most important parts of the treatment, and was insisted upon in all severe or obstinate cases. It must be continuous for four weeks and then half the dose for two weeks more. A second course of the treatment was sometimes needed, but in no case yet had marked benefit failed to result. The relief from pain had lasted in his cases from two to five years. He regarded the disease as essentially a local expression of general malnutrition. He regarded surgical interference as being only justifiable as a last resort.

On the Nature and Treatment of Exophthalmic Goitre.—Dr. Allen Starr, in an article in the *New York Medical News*, urges the theory that exophthalmic goitre is due to hyperactivity of the thyroid gland. This theory was first proposed by Möbius, of Leipsig, in 1886, and has gradually gained ground, being now

accepted by many authorities in Germany. The contrast between myxœdema and exophthalmic goitre is very marked. (1) In myxœdema there is a primary atrophy of the thyroid gland. (2) In myxœdema there is a marked tendency to abnormal heaviness of the eyelids, so that the upper lid falls and the eyes are never widely open. There is also a retraction of the eyeball. While the opposite conditions are present in exophthalmic goitre. (3) The condition of the heart and arteries in myxœdema is exactly the opposite of the condition found in exophthalmic goitre. (4) Skin: In myxœdema the skin is thickened, rough and dry, and the electrical resistance is in-increased. In exophthalmic goitre the skin is particularly soft, thin, fine and moist, and the hair and nails grow rapidly. The electrical resistance is diminished in exophthalmic goitre on account of the increased moisture of the skin. (5) Temperature: In myxœdema, the patients suffer constantly from a sense of cold. In warm weather they feel chilly and never perspire, and in cold weather they suffer extremely from the cold. The body temperature is uniformly depressed, being 97o under the tongue. In exophthalmic goitre patients suffer constantly from a sensation of heat, they perspire freely and the temperature is actually elevated a degree or more. (6) Mental Condition: In myxœdema there is a particularly dull condition of the mind, they are indifferent to their surroundings. In myxœdema, hallucinations, especially of sight, are prominent symptoms. In exophthalmic goitre the patients are mentally alert and in a state of psychical excitement, and are very emotional. Acute mania is known to be a complication of very serious import in this disease. The rest treatment is probably the most successful of all the methods employed in the treatment of exophthalmic goitre. Dr. Starr states that patients suffering from exophthalmic goitre have had all their symptoms markedly increased by the use of thyroid extract and he does not advise the use of thymus extract. He states that in severe and intractable cases of exophthalmic goitre in which rest, care and medicinal treatment have failed to relieve, the operation of extirpation of the thyroid

gland must be considered as justifiable. He concludes, (1) that the symptoms of exophthalmic goitre are due to an excess of thyroid juice, either of normal or abnormal character, circulating in the blood and acting directly upon the vasomotor and nervous systems and upon the muscles, (2) that it seems probable that the best treatment for the disease is to arrest the secretion of the thyroid gland, or to remove the gland from the body.

REPORTS OF SOCIETIES.

British Orthopædic Society.

This society met at Birmingham on May 30th, 1896. The New General Hospital, the General, the Children's, and the Royal Orthopædic Hospitals were visited by the members. The meeting was held at the Birmingham Medical Institute.

Mr. William Thomas showed cases of Congenital Torticollis, severe Lateral Curvature in a male adult, Congenital Absence of Metacarpus and Phalanges, Double Congenital Displacement of the Hip, and Talipes treated by Tarsectomy.

Dr. Warden showed a case of Partial Absence of the Fibula, marked Lateral Bending of the Tibia, associated with Congenital Talipes Valgus.

Mr. E. Luke Freer showed a case of Double Congenital Talipes Equino-Varus successfully treated by tenotomy, wrenching and manipulation. Also a case of Rhachitis Adolescentium in a girl aged 16 years, who had been under his care for severe Genu-Valgum when 4 years of age, and had worn instruments for 4 years with no material improvement. A double osteotomy was then done, and she continued to wear supports for 3 years more. Mr. Freer then lost sight of her for 8 years, and a few months since she reappeared in a condition of pronounced Genua Vara. He also showed cases of Knock-Knee treated by Osteotomy, and of very severe Congenital Talipes Equino-Varus.

The above cases were discussed.

Mr. Robert Jones brought forward a case of Recrudescent Rickets. The patient, a girl of 16, had at the age of eight developed knock-knee. Up to two years ago she had been able to walk comfortably, but since then she had been quite unable to stand or walk. The left parietal bone was slightly flattened. The sutures were closed, but the sulci were well marked, especially that between the frontal and parietal bones. The palate was arched, and all the teeth, except the wisdoms, were present. The lower jaw was thickened at the angles and pointed at the chin. The circumference of the head was 20½ inches. The chest was somewhat barrel-shaped, the ribs were beaded, and Harrison's sulcus was marked. The heart and lungs were normal. There was also some rib deformity, due to a slight lateral curvature. The abdomen was large and prominent. The abdominal muscles were flabby. In addition to a lateral curve to the left, there was very marked lordosis, accompanied by rigidity. The angles of the scapulæ were prominent. The radii were enormously thickened at the lower ends, so that the appearance was somewhat that of a very bad Colles' fracture. Supination was much interfered with, pronation to a slighter degree. The arms were very thin and poorly developed, but she had a fairly good grasp. The pelvis appeared to be normal. There was considerable enlargement of the lower end of the femora, and the internal condyles were very prominent and elongated, so that on extension of the limbs there was exceptional knock-knee, the leg forming an obtuse angle of 135 degrees with the thigh. This deformity was more marked on the left than on the right side. There was also flexion deformity at the knees, and it was impossible to get the legs perfectly extended. Flexion perfect, and the knock-knee disappeared. Further, there was flexion deformity of 25 degrees at the hips. The feet were in varus position, and this was due to an acute bend at the lower end of the tibia just above the ankle joint, and also to a great thickening at the lower ends of the fibulæ. The sacrum was curved and prominent. The child was very stunted in growth and ill-nourished. She was fairly

intelligent, but could not walk or stand at all. There was one-ninth of albumen in the urine.

Mr. Jones remarked that these cases are less rare than generally supposed, that usually the lower extremities alone were affected, and concluded as follows :—

(*a*) That late rickets is generally recrudescent. (*b*) That epiphysial enlargements are an essential feature. (*c*) That while static influences bear an important part in production of the limb deformities they are not essential factors. (*d*) That in addition to the common deformities of rickets, flexion deformities are found in the hip and knee, and frequently limitations of movement in other joints. (*e*) That the skull and face may exhibit rachitic deformities. (*f*) That the sacrum generally presents an angular projection about its middle.

Mr. Tubby discussed the case.

After votes of thanks were passed to the Birmingham members for their hospitable reception, and the Council of the Birmingham Medical Institute for allowing the use of the rooms, the proceedings terminated.

REVIEWS.

A SYSTEM OF MEDICINE.*

THE need for an up-to-date "System of Medicine," written by English authors, and of such scope that each article shall be as far as possible an exhaustive and authoritative work of reference on the subject with which it deals, has for a long time been felt by the medical practitioners in this country. Sir Russell Reynolds' system has necessarily fallen to a large extent behind the times, and the numerous text-books and dictionaries of

* A System of Medicine. By many writers. Edited by Thomas Clifford Allbutt, M.A., M.D., LL.D., F.R.C.P., F.R.S., F.L.S., F.S.A , Regius Professor of Physic in the University of Cambridge, &c. Volume I. London: Macmillan and Co., Ltd., 1896.

medicine which have been recently published, or revised and republished, fall far short of our requirements. It was therefore good news to hear that an English system of the necessary scope was in course of preparation, and the knowledge that its editorship had been placed in the hands of Professor Clifford Allbutt was a guarantee that the expectations raised would not be disappointed. We may at once say that the appearance of the first instalment of the work fully justifies this confidence, and gives every reason to believe that the new system will come fully up to the requirements that we have mentioned. It is true that the articles have not quite exclusively been written by our own countrymen, for two at least—namely, those by Dr. Billings and Professor Adami—come to us from America; but Dr. Billings is so eminent an authority on his subject of Medical Statistics, and Professor Adami has so recently left England, and has moreover written such an ably exhaustive chapter on inflammation, that these departures from the general rule will readily be pardoned.

It is no easy matter to attempt any detailed notice, much less criticism, of the 38 articles contained in this first volume, and we must content ourselves with some description of the general plan of the work and with a notice of some only of the more important features of its articles.

The present volume is divided into two portions, the first of which, or "Prolegomena," is introductory in nature, whilst the second is the first instalment of the section on the infectious fevers. To the whole work Professor Clifford Allbutt contributes a most thoughtful, scientific, and polished Introduction, which, if somewhat discouraging in its representation of the scientific weakness of many of our methods, yet cannot fail to broaden the views of the reader and teacher, and to aid him in divesting himself of some of the more immature ideas which he acquired in his earlier and more especially in his student days. Of the contents of the Prolegomena there will probably be some amount of criticism, more, however, as regards the selection than the workmanship of the articles. Thus, we have our own doubts

as to the possibility of saying much that is of real value about the general principles of diatetics in disease, and it can hardly be charged to Sir Dyce Duckworth's account that he has not succeeded in writing anything but a somewhat superficial chapter on this subject. Again, Dr. Leech has laboured under a similar difficulty in the nature of the subject committed to his charge, whilst we are not quite sure that an article on Nursing, however well written, need have been included in a modern system of medicine. These, however, are points of small importance, in answer to which Dr. Clifford Allbutt would probably have plenty to say, and they embody nearly all the adverse criticism with which the book is likely to be at all generally assailed.

After five short articles on Medical Statistics by Dr. Billings, Anthropology and Medicine by Dr. Beddoe, Temperament by Dr. Rivers, the Laws of Inheritance in Disease by Mr. Hutchinson, and Medical Geography by Mr. Haviland, we come to the first of the really important sections of the book in Professor Adami's chapter on Inflammation. Of it we have already spoken, and need only add that it would be difficult to speak too highly of this most able article. We can hardly doubt that it will form for the present the standard account of the subject. The next chapter, on the General Pathology of Fever, by Professor Burdon Sanderson, is perhaps a little disappointing in its failure to make very clear what is the precise position of our knowledge on the matter. For this, of course, there is much excuse in that this knowledge is by no means very positive, and that there are still many points to be cleared up before any complete theory of the nature of fever can be framed. Nevertheless, we are inclined to think that the article is hardly as clear, and therefore as useful, as it might be. It is followed by two good articles on the General Pathology of Nutrition by Dr. Mott, and the General Pathology of New Growths by Mr. Shattock and Mr. Ballance. Of Dr. Leech's essay on the Principles of Drug Therapeutics we have already spoken: it appears to us that, although the best has been done with the

subject, there is but little in it that could not have been better included in the various articles of which the body of the book will be composed. Thus, for example, all that is here said on the subject of cardiac therapeutics will probably be repeated and considerably amplified in the section on heart disease, and we cannot see much advantage in generalising on such subjects. Precisely the same criticism applies to Sir Dyce Duckworth's chapter on the General Principles of Dietetics in Disease, which follows later on; but the succeeding article by Dr. Eustace Smith on the Diet and Therapeutics of Children labours under no such disadvantage, inasmuch as it has for its subject a clearly defined special department of dietetics which could hardly be dealt with elsewhere. This article is excellently written, and might well have been expanded to greater length. Drs. Hermann Weber and Michael Foster contribute a very useful chapter on Climate in the Treatment of Disease; and Dr. Theodore Williams writes on Artificial Aerotherapeutics, whilst Drs. Hermann Weber and Parkes Weber deal with the subject of Balneology and Hydrotherapeutics. The article by Dr. Lewis Jones on the Medical Applications of Electricity is in the main an excellent one, though here again we doubt the wisdom of attempting to deal in a single chapter with the application of electricity to a large number of special conditions. There remain in the Prolegomena only chapters on Massage by Dr Kearsley Mitchell, Nursing by Miss Amy Hughes, the Hygiene of Youth by Dr. Clement Dukes, and Life Assurance by Dr. Symes Thompson, all of which are in their way of high excellence, and of which we may single out those by Drs. Dukes and Thompson as being of especial value.

Of the remaining half of the book, which commences the systematic work, we have nothing but good to say. The articles are most of them exhaustive and thoroughly modern. They are devoted to the subject of the fevers, and with the exception of a short article by Sir Joseph Fayrer on Isolation and Sunstroke, deal entirely with some fifteen of the "infections" or infectious fevers. It is worthy of note that in this section is

included Infective Endocarditis and Epidemic Pneumonia, though in both concession is made to the older, and undoubtedly, as we think, more convenient practice, and the description of the symptoms and their course left for the section on diseases of the heart and lungs respectively; a mere account of the ætiology and epidemiology being here contributed by Dr. Dreschfeld and Dr. Whitelegge. The chapter on Furuncle and Carbuncles might, we are inclined to think, have been omitted; but Dr. Playfair's description of Puerperal Septic Disease is clearly in its right place, considering the important medical connections of the disorder.

The section opens with an exhaustive chapter on the General Pathology of Infection by Dr. Kanthack; to which follow articles on Septicæmia and Pyæmia, and Erysipleas by Mr. Watson Cheyne, which necessarily are at least as much surgical in their nature as medical. Besides the shorter articles which we have already mentioned, Dr. Ormerod writes upon Epidemic Cerebro-spinal Meningitis, Sir George Humphry and Dr. Sims Woodhead on Tetanus, Dr. J. F. Payne on the Plague, and Drs. Rabagliati and Wesbrook on Relapsing Fever. But the greatest interest of this section centres in the longer articles on Influenza by Dr. Goodhart, Diphtheria by Drs. Gee, Thorne Thorne, Kanthack, and Herringham; Enteric Fever by Dr. Dreschfeld, and on Cholera Asiatica by Dr. Macleod, Mr. Ernest Hart, Dr. S. C. Smith, Dr. Kanthack, and Mr. J. W. W. Stephens. These are four very excellent articles, which undoubtedly gain in the case of the second and fourth by the division of labour adopted. In the article on Diphtheria a few points strike us as somewhat unsatisfactory, notably the part concerned with the subject of treatment. This, with the exception of two pages devoted to the antitoxin treatment (a full belief in the efficacy of which is expressed) is all compressed into the space of but little more than a single page, the result of which is that a description of the mere text-book type is given. This is inadequate to the importance of the subject, and contrasts unfavourably both with the exhaustiveness of the rest of the article, and with Dr.

Dreschfeld's careful analysis (for example) of the treatment of enteric fever. The rest of the article is, however, very good, though we doubt whether too much distinction is not made between the laryngeal and other forms of the disease.

In this review we have not attempted to criticise individual statements. Such a task would be an enormous one. We have therefore simply endeavoured to give an idea of the general scope and nature of the work. We have intended to make clear our opinion that this system bids fair to be a most able and valuable work, and that, if the future articles reach the same level as most of those in the present volume, we shall owe to Professor Allbutt and his contributors an addition of the highest merit to the Systems of Medicine now available for reference. That the fullest measure of support will be accorded to it by the profession there can be but little doubt.

THE HISTOPATHOLOGY OF THE DISEASES OF THE SKIN.*

In Dermatology more than in any other branch of Medicine, a want has existed for a systematic treatise on the anatomical changes which take place in the skin under diseased conditions. Probably the very absence of such a treatise has induced some dermatologists to ignore morbid cutaneous anatomy, believing that the underlying conditions do not in any way affect the question of treatment. This is obviously erroneous in principle, for in dermatology, as in all other branches of medicine and surgery, the better our knowledge of the nature of the changes, the more thorough and practical will be our treatment. This want of a work on the pathological anatomy of the skin is now filled by the appearance of Dr. Unna's treatise. The work of Leloir and Vidal, though one of great value, is rather an atlas with a letter press description than a text book on morbid

* The Histopathology of the Diseases of the Skin. By Dr. P. G. Unna. Translated by Norman Walker, M.D. Edinburgh: William F. Clay.

anatomy. Apart from this, we have had only fragmentary descriptions of histological conditions incorporated in various text-books on skin diseases, and therefore the appearance of a treatise written by one who has made the study of cutaneous pathology especially his own, cannot but be of immense value to dermatologists, and the interest in the present work is greatly enhanced by the fact that Unna holds many views which differ largely from those accepted by dermatologists, especially in England.

The first portion of the work is devoted to anomalies of circulation, such as anæmia, hyperæmia, angio-neurosis and œdema; but it is more particularly section ii., which in itself covers 600 pages and is devoted to inflammation, that we find the main feature of Unna's work. The first groups contain traumatic and neurotic inflammations, while the third is devoted to infectious inflammations, the first subsection of which contains local infectious inflammations, as scabies, impetigo, and pemphigus. We thus see the breadth of some of Unna's views in placing these affections side by side. Under the same heading, but a different subsection, we find Ichthyosis, inflammations of the follicles, which include Acne, Favus, and Trichophytosis. Inflammation of the coil glands is also placed here as well as a large number of affections due to various bacterial organisms, as Anthrax, Glanders, Rhinoscleroma, &c., and the section closes with the Acute Exanthemata. Section iii. contains "progressive disturbances of nutrition," as the malignant growths and other tumours and pigmentations. The "regressive disturbances of nutrition" are considered in section iv.; malformations section v.; Saprophytes and foreign bodies section vi. It will thus be seen that the work covers an immense field, and when we consider that each article in itself is almost a monograph, we obtain some idea of the extent of Unna's researches.

In reviewing the large group of diseases which the author includes under the head of infectious inflammations, he shows that it is only the clinical and histological facts which can be utilised, for our knowledge is too deficient and too unequal to

take the etiology as the basis of classification. It is only in some instances such as Tuberculosis, Impetigo staphylogenes, Trichophytosis, Scabies, and Erysipelas, that we can consider our etiological knowledge as adequate. But in other cases, though we are nearly certain of the underlying infective cause, *e.g.*, Syphilis, Aleppo boil, Impetigo contagiosa, we have a very slender knowledge of the infective agent. In others, again, it is as it were only beginning to occur to us that we may have, as in the cases above quoted, an infective etiology. Such diseases are Eczema, Psoriasis, Acne varioliformis.

The author considers that a provisional explanation is justified in the case of other processes on account of their obvious relation to better known groups, and therefore he includes Tinea imbricata, Impetigo herpetiformis, Pemphigus acutus benignus. Therefore what might appear at first sight strange in this classification, if only looked at from one point of view, in reality becomes severely logical when we take a broad view of the group of processes whose obscurity of etiology is only due to our want of their knowledge. Some of us may well wonder at Pityriasis rubra Hebra, Pytiriasis rubra pilaris, Pemphigus chronicus, Acne and Ichthyosis finding a place under the head of infectious inflammations of the skin. Under the title of Impetigo, the writer includes many different forms of infectious crust-forming vesicular diseases. Thus there is Impetigo vulgaris, in which the crust is fibrinous; there is an absence of marked suppuration; it usually affects the region of the mouth and the nose, and the crusts are greenish yellow. Another form is Impetigo circinata, which differs from the last in forming flat thin crusts which sink in the middle and spread at the margin, while Impetigo streptogenes extends into the neck of the hair follicle and insinuates itself between the papillary body and the epithelium. The contents of the vesicles consist of a large amount of serum, leucocytes, epithelial collections, and enormous number of Streptococci.

The chapter on malignant growths of the skin contains many points of great interest. The histological characters of rodent

ulcer are very carefully described, and very full explanations are given of the curious clinical features of this disease. The flatness of the growth and the paucity of epithelial change is compared with the other forms of malignant disease. There is an interesting description of "Carcinoma of the Sailor's Skin," under which name the author describes an affection of the skin in the parts exposed to the weather, a disease which is chiefly observed among those spending their lives at sea. The parts affected, such as the cheeks, temple, backs of the hands, &c., at first show a diffuse cyanotic redness. The skin becomes mottled with spots of pigment, and the portions of the skin between these places lose their pigment. At the same time the skin becomes rough and hard by thickening of the horny layer, and in some places almost callous or warty. This stage may last for years, and then warty-like growths, hypertrophies of the sebaceous glands, and papillary and ulcerating Carcinomata appear. Microscopically, two chief changes succeed the earlier stage in which there is merely callous thickening of the surface and these depend on the amount of hyper-keratosis or acanthosis, that is, whether the result will mainly consist in callosities and wart-like thickenings, or whether the prickle layer shows the chief change consisting in irregular expansions and even distortion. Then, instead of the nail-like callosities, scales and hard crusts are formed, and these, when thrown off, leave a malignant form of ulcer. The writer considers that the cancer of sailors' skin is much more malignant than the true Jacob's rodent ulcer, to which it bears a certain resemblance in the earlier stages. Closely allied to this is xeroderma pigmentosum which is a typical "carcinomatous disease." In neither of these three is there any swelling of the glands. In describing Paget's Disease there is a long historical notice of the different theories which have arisen as to its anatomical position, and the author's view of the affection he says corresponds in the main with the older ones of Thin, Duhring and Wile. The author says that he "cannot admit a direct transition of the skin disease into cancer." This is in contradiction to Karg, who regards

the affection of the surface epithelium as already superficial cancer. Unna rather looks upon this affection of the surface as "unique and as different from cancer as from eczema, and it leads . . . not directly and necessarily to cancer, but it prepares the ground for it so successfully that in most cases cancer develops."

There are many articles which we would like to notice, such as disease of the coil glands apparatus — Spiradenoma, Syringadenoma and Adenoma of the sebaceous glands, Steatadenoma—the pigmentations and the atrophic diseases, but space does not admit. One feature of the work which strikes us as adding greatly to its utility is that, preceding each anatomical description, there is a short clinical outline of the disease, so that the reader knows exactly the condition which the writer has in his mind, a point which is of great necessity in the midst of the intricacies of dermatology and its rather complicated nomenclature. On the other hand we should have preferred a more distinctive division into chapter and section, as in many cases the name printed in italics is all that divides two totally different sections. There are fairly complete references to literature at the end of the sections. We cannot help thinking that it would have been very advantageous had there been more copious illustrations, and instead of the 19 coloured figures given as a frontispiece, it would have been preferable to have placed others in the text somewhat clearer in character.

As a translation the work is admirable, and it is not often we find any treatise rendered into English with such clearness and freedom from the idioms of the original. Dr. Norman Walker is to be congratulated on the way he has performed this task. At the same time we feel that the references to literature would have been better left untranslated, for it cannot but increase the difficulty of reference to find titles of papers in English instead of as they appear in the various periodicals.

D. S.

TRANSACTIONS OF THE ROYAL ACADEMY OF MEDICINE IN IRELAND.*

THE thirteenth volume of the Transactions of the Royal Academy of Medicine in Ireland is on the whole more than usually interesting, and contains no less than forty-nine papers. The majority of these have the rare merit of being short and concise, though a few longer essays on the more important subjects are included.

It is of course impossible to enter into any detailed criticism of these numerous papers, and we may therefore content ourselves with calling attention to a few only of the most interesting amongst them. In the Section of Medicine, mention may be made of the series of three papers on various aspects of Small-pox, as observed in the recent Dublin epidemic, by Drs. J. W. Moore, Joseph O'Carroll, and H. C. Drury, who write upon a Case of Small-pox and its Lessons, the Diagnosis and Prognosis of Small-pox, and Small-pox Temperature Charts, respectively. The last of these papers is especially interesting; and in it the writer reduces the varieties of pyrexia met with in the disease as he has seen it to three main types. In the first of these there is to be seen the type of fever ordinarily described in our medical text-books, with its sudden rise, the drop with the appearance of the rash, and the well-marked secondary fever. The second series of charts exhibits nothing but a perfectly irregular fever which never reaches the normal level until the termination of the case; whilst in the third there is a sudden rise, generally to a high level, with a rapid drop in the course of a few days down to the normal, from which there is subsequently at most an occasional and insignificant departure. According to Dr. Drury's experience, the latter is the type of pyrexia now most frequently met with. In the same section, Dr. M. J. Nolan's account of three cases of "Hereditary Ataxy

* Transactions of the Royal Academy of Medicine in Ireland. Vol. XIII. Edited by William Thompson, M.A., F.R.C.S., General Secretary, Surgeon to the Richmond Hospital, Dublin. Dublin: Fannin and Co., Ltd., 1895.

associated with genetous idiocy" deserve special mention, especially in the marked affinity which they show in some respects with the group of hereditary cerebellar ataxias to which much attention has been recently devoted by neurologists. Thus, in neither of the cases was there any deformity of the feet, though two of the patients exhibited a slight degree of dropped-foot; in one the knee-jerk was exaggerated, and there was slight ankle clonus, the knee-jerk being abolished in the other two; whilst in one of the latter the typical ataxy of Freidreich's disease was combined with symptoms of a more definitely cerebellar type. Yet all three patients were members of the same family, and must therefore be assumed to be suffering from essentially the same type of hereditary disease.

In the Section of Surgery, the series of papers upon intestinal accidents and diseases are especially interesting. Thus, Sir Thornley Stoker writes upon the methods of relieving an obstructed bowel, especially with reference to cases of so-called "ileus paralyticus," the leading idea of his paper being the undesirability of operation in the great majority of these cases. He would in its place exhaust all the possibilities of medical and non-operative surgical treatment by the use of large doses of belladonna, irrigation by means of a soft india-rubber tube, &c., before having recourse to an operation which in such cases is so almost invariably fatal as is abdominal section. This contention, with which we most cordially agree, receives support in the paper by Mr. William Thompson, in which three cases of operation for internal strangulation are detailed, with the result that all the patients died, even though in two of the three cases the obstruction was successfully relieved. Finally, Mr. T. Myles discusses the operation of Appendicectomy, and records two cases successfully so treated; while Mr. Henry Gray Croly writes upon the various forms of hernia, and strongly deprecates any but the slightest use of taxis before operation.

In the other sections there are also many interesting papers, but they are too numerous for separate review.

COTTAGE HOSPITALS.*

It is claimed for this book that "although a third edition it is really a new book on the subject," and there is undoubtedly much that was omitted from the earlier editions. Chapters on midwifery, mortuaries, and convalescent cottages have been left out bodily and the subjects treated in a shorter manner in other parts, while there is added an alphabetical list of all the Cottage Hospitals in the United Kingdom and in the United States of America. A suggested set of rules for the government and management of Cottage Hospitals has also been added, and there are many more plans now published.

The plans of existing hospitals as well as those model ones drawn up by the Local Government Board and those suggested by the Author, form perhaps the most interesting section of this book, but it is a great pity that when these plans were prepared for publication a uniform scale was not adopted that a comparison might more easily be made.

It is stated that since the first Cottage Hospital was founded by the late Albert Napper, at Cranleigh, Surrey, in 1859, 294 Cottage Hospitals have been opened, the number for the first few years varying from 13 to 17 per annum; for the next fifteen years they dropped to an average of 6½, but in 1888 (no doubt due to the celebration of Her Majesty's Jubilee) there were 14, and again in 1894, 13; in the intermediate years the number varied from 4 to 9 in the year.

Among other suggestions made is one that Cottage Hospitals should provide a Mortuary, not only for their own purposes, but should throw it open for the reception of the dead bodies from the town or village separately, and so avoid the necessity of taking the bodies after fatal accident or suicide to a neighbouring public house.

The book contains comprehensive advice for the selection of a site and choice of plans of a proposed cottage hospital down to

* Cottage Hospitals. By Henry C. Burdett. Third edition. London: The Scientific Press.

details of nursing, such as hot fomentations, the administration of food and medicine, and the mode of using the clinical thermometer.

There is also a chapter on Cottage Hospitals in the United States of America, of which there appear to be very few as the term is understood in this country, though there are some 43 Hospitals of less than 80 beds, particulars of which are given.

BURDETT'S HOSPITALS AND CHARITIES.*

MR. BURDETT'S Year-Book for 1896 of the British Hospitals and Charities is, like its predecessors, a wonderful instance of patient, laborious, and accurate work. Nor is it to be looked upon in the light merely of a directory, for it contains over 200 pages of letter-press devoted to the consideration of hospital management and finance, and written by one who is perhaps the leading authority on those matters. One of the principal features of this part of the present volume is its careful estimate of the amounts contributed to the medical charities in the various towns by the working classes; and although we cannot agree with Mr. Burdett in thinking that it would be an advantage under the present constitution of our hospitals if 20 per cent. of their expenses were to be regularly supplied by patients' payments, and 40 per cent. each by the donations of the wealthy and working classes, yet there is much to be learnt from a study of his tables, and from his consideration of the question as to how far the contributions of the working classes can be logically regarded in the light of a free gift to the charities. Mr. Burdett of course arrives at the conclusion that this so-called gift partakes to a large extent of the nature of payment for benefits received or to be received; but the plan which he suggests appears to us to be calculated only to add to the present unfortunate confusion of provident medical aid with medical charity. The chapter, however, is an important aid to the right understanding of the whole question.

* Burdett's Hospitals and Charities, 1896., being the Year-Book of Philanthropy. By Henry C. Burdett, London: The Scientific Press Ltd.

MEDICAL ANNUAL, 1896.

THE Medical Annual for this year maintains its reputation as a practical work of reference on almost any subject that the medical reader may require. There is always more or less difficulty in reviewing a book of this nature to give due notice to the many articles which it contains, and, as on previous occasions, we must content ourselves by referring to a somewhat limited number. In the section on new remedies there is an extremely practical account of Chloralose, abstracted largely from the investigations of Marandon de Montyel. There is an article on Uranium Nitrate from Dr. Samuel West's papers. Dr. George Thin contributes a paper on "How to observe the parasite of Malaria," which contains many useful details and is accompanied by a coloured plate. The article on Life Assurance (De Havilland Hall) contains much practical information which will be useful to those who are beginning examinations for assurance. One of the main features of Wright's Medical Annual is the excellence of the articles on special departments, and their eminently practical character. The volume for this year is no exception to the rule; thus the chapters on the ear, the eye, the larynx, &c., will be of much service to the practitioner in an emergency when it may be impossible to consult a special treatise.

MEDICAL AND SURGICAL REPORT OF THE PRESBYTERIAN HOSPITAL IN THE CITY OF NEW YORK.*

THE management of the Presbyterian Hospital has recently decided to follow the example set by the leading hospitals in London and to issue an annual volume of reports, which shall

* Medical and Surgical Report of the Presbyterian Hospital in the City of New York. Vol. i., January, 1896. Edited by Andrew J. McCosh, M.D., and Walter B. James, M.D. New York: The Knickerbocker Press.

embody not only statistics of the medical and surgical work done in the hospital during the year, but also papers and reports of individual cases by members of the staff. We could wish that this practice were more widely followed in our own country, and that the principal provincial hospitals were able to record their own experience in a similar yearly volume; for undoubtedly such collections are of real interest and importance, and cannot fail to improve the scientific work done in the hospital.

The present volume is an excellent example of such reports. It contains twenty-six original papers, most of them short and concise, and, in addition, a brief abstract of the hospital statistics. We congratulate the Management upon their new departure, and upon the success with which it has been carried out.

LECTURES ON PHARMACOLOGY.*

It is probable that most people perusing these lectures will be surprised to find how very interesting pharmacology may be made to appear. It is really a pleasure to read them, and this is to a considerable extent enhanced in their English dress by the very readable translation given us by Dr. Latham. This, the second edition, has, unlike most editions after the first, the rare quality of being actually less than its predecessor, without anything of importance being omitted, and with the addition of a considerable amount of fresh matter. As one would expect, the numerous experiments throughout the lectures lose somewhat from bare description, but the illustrations and anecdotes are so appropriately introduced that at times the professor and his class appear quite vividly before the imagination. The volume before us deals with anæsthetics, hypnotics, the halogen

* Lectures on Pharmacology for Practitioners and Students. Vol. i. By Dr. C. Binz, Director of the Pharmacological Institute in the University of Bonn. Translated from the Second Edition by Arthur C. Latham, M.A., M.B. Oxon, M.A. Cantab. London: New Sydenham Society. 1895.

compounds, the nitrite, digitalis and strychnia groups, and the alcohols. We shall look forward with pleasure to the publication of the second volume of the lectures.

KING'S COLLEGE HOSPITAL REPORTS.*

The second volume of the King's College Hospital Reports fully carries out the promise given by its predecessor of last year. It contains a continuation of Dr. John Curnow's Historical Sketch of King's College and its Hospital, and several papers on medical and surgical subjects, besides very full statistical reports of the various departments of the Hospital. Among the medical papers we notice an interesting communication from Dr. T. Sydney Short on the Association between Urethritis and Subacute Inflammation of the Joints, in which several cases are described, and the question of their real relation to the gonorrhœal infection discussed. We may also especially call attention to the paper of Mr. George Lenthal Cheatle, on the Sterility of Wounds, in which the results of some interesting experiments on the subject are recorded.

ROUGH NOTES ON REMEDIES.†

We like the tone of this little book. It is a record of a few actual experiences in the use of drugs encountered during a life of general practice, and although many of the cases are related somewhat barely the principles put forward are genuine and valuable. Dr. Murray very rightly says that much actual fact is

* King's College Hospital Reports. Volume ii. October 1st, 1894, to September 30th, 1895. London: Adlard and Son. 1896.

† Rough Notes on Remedies. By William Murray, M.D., F.R.C.P. London: H. K. Lewis. 1896.

unrecorded because men are afraid that their recounted experiences, unless crowded with minute detail, will not be now-a-days considered scientific. We can assure him that his observations on arsenic, belladonna, and aconite are more worthy of that term than much of the modern so-called scientific writing which consists principally of compilations of the work of others, and in place of facts and personal experiences supplies theories and a bibliography.

PUBLIC HEALTH LABORATORY WORK*

As its name implies, this book deals with hygienic analysis solely, and is a useful adjunct to the text-books of hygiene and public health already in the market. It will be especially valuable to men preparing for Public Health examinations, and thoroughly describing as it does all the processes in the analysis of water, air, soils, foods, &c., it may be read while the laboratory work is actually being done. A good feature is the introduction of "samples," with complete analyses worked out according to the schemes recommended, illustrating not only the method to be followed, but also the kind of specimen likely to be met with. We think the publishers might have given more care to the printing; the type is very much chipped, and on some of the pages the letters are blurred and are read with difficulty.

CURRENT FROM THE MAIN.†

THESE two papers, reprinted with additions from the *Lancet*, may be instructive to electricians laying down wires in a house, but they are altogether too technical to be useful to a medical man

*Public Health Laboratory Work. By Henry R. Kenwood, M.B., D.P.H., F.C.S. Second Edition. London: H. K. Lewis.

†Current from the Main. By W. S. Hedley, M.D. London: H. K. Lewis. 1896.

seeking information concerning methods by which the current from the main may be utilised for electro-therapeutic purposes. If the author were to write a practical and more intelligible little treatise on this subject we think it would have more readers.

PUBLISHERS' DEPARTMENT.

New Inventions, Drugs, etc.

Samples of the following new Tabloids are sent to us by Messrs. Burroughs and Wellcome :—

Stypticin, or hydrochloride of cotarnin, one of the oxidation products of the opium alkaloid, narcotin. In chemical structure and therapeutic action this drug is said to be closely allied to hydrastinin, but it is believed to be of still greater value than hydrastis in the treatment of uterine hæmorrhage owing to its well-marked sedative properties. It has been introduced by Gottschalk, and especially recommended by him for the treatment of cases of dysmenorrhœa and uterine subinvolution, etc. Tabloids are prepared for administration hypodermically as well as by the mouth.

Uranium Nitrate; each tabloid containing one grain of the drug. The use of this salt in the treatment of diabetes has been advocated by Dr. West, but has hardly been as yet satisfactorily established. We believe that much larger doses than one grain have to be gradually reached if any good is to be expected from the remedy, and should suggest that additional stronger tabloids might be prepared with advantage.

Piperazine, in five grain doses. This drug, like the preceding, is still on its trial. Recent researches, especially those published by Dr. John Fawcett in the last number of the Guy's Hospital Reports, tend to throw much doubt upon its usefulness as a therapeutic agent; but the preparation is a convenient one for those who wish to try its effect.

Chloralamide and Bromide of Potassium, containing five grains of each drug. This combination should prove an eminently useful one in cases of insomnia. It is especially intended also for the treatment and prevention of sea-sickness.

Soloids of Zinc Chloride, gr 1; Corrosive Sublimate, gr. 1·75; Silver Nitrate, gr. 1; and Potassium Permanganate, gr. 5. All these will prove extremely useful in the rapid preparation of antiseptic solutions. Each soloid has a distinctive colour, so that its solution is readily recognised.

The same firm send us also samples of Anti-syphilitic and Anti-typhoid Serum each of which can be supplied either liquid or in the form of dried scales. We are glad to find that an opportunity is thus provided for the trial of these remedies.

We have received from the Midland Apothecaries Company a sample of their Disinfecting Fluid, "Eucalturp." The merits of this preparation are well known. It is a good disinfectant for the purification of Drains, closets, buildings, etc., and has the additional advantage of being obtainable at a small cost.

New Books, etc., Received.

Rheumatism, its Nature, its Pathology, and its Successful Treatment. By T. J. MACLAGAN, M.D., Physician in Ordinary to their Royal Highnesses Prince and Princess Christian of Schleswig Holstein. Second Edition. London: Adam and Charles Black.

Modern Methods of Intestinal Anastomoses. The Murphy Button, with a report of an unsuccessful cholecystduodenostomy. By AUG. SCHACHNER, M.D., Ph. G., Demonstrator of Anatomy, Louisville Medical College, Surgeon to Louisville City Hospital.

Aids to Medicine. Parts i–iv. By NORMAN DALTON, M.D Lond., F.R.C.P, Physician to King's College Hospital. and Professor of Pathology in King's College. London: Baillière, Tindall and Cox.

Knowledge. An Illustrated Magazine of Science, Literature and Art. July 1896.

Handbook of Diseases of the Ear for the use of Students and Practitioners. By URBAN PRITCHARD, M.D. Edin., F.R.C.S. Eng., Professor of Aural Surgery at King's College, London, Aural Surgeon to King's College Hospital. Third Edition with Illustrations. London: H. K. Lewis. 1896.

The Skull of the Dog. A Manual for Students with a Glossary of Osteological Terms. By WALTER E. COLLINGE, F.Z.S., Assistant Lecturer and Demonstrator in Zoology and Comparative Anatomy, Mason College, Birmingham. London : Dulan and Co. Birmingham : Cornish Brothers, 1896.

Transactions of the Grant College Medical Society, Bombay, from January to December, 1895.

The Battle of the Clubs. By the Special Commissioner of the *Lancet*. London : The Offices of the *Lancet*.

Hydrogalvanism of the Urethra. By ROBERT NEWMAN, M.D., New York, Consulting Surgeon to Hackensack, Bayonne, and McDonough Memorial Hospitals, etc.

Ueber den Klinischen Werth des Tannalbin. Von Prof. Dr. O. VIERORDT.

Manual of Midwifery, for the Use of Students and Practitioners. By W. E. FOTHERGILL, M.A., B.Sc., M.D., C.M., Buchanan Scholar in Midwifery, University of Edinburgh, &c. Edinburgh : William F. Clay. 1896.

Archives of Clinical Skiagraphy. No. 2, Vol. i. June, 1896. London : The Rebman Publishing Co., Limited. 1896.

The Surgery of the Chest. By STEPHEN PAGET, M.A., Oxon, F.R.C.S., Surgeon to the West London Hospital and to the Metropolitan Hospital. Bristol : John Wright and Co. 1896.

Angio-Neurosis ; being Studies in Diseases of the Vaso-Motor System. By W. RAMSAY SMITH, M.D., C.M., B.Sc., Senior Physician to the Adelaide Hospital, South Australia. Bristol : John Wright and Co.

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THE

BIRMINGHAM MEDICAL REVIEW.

SEPTEMBER, 1896.

ORIGINAL COMMUNICATIONS.

THE TREATMENT OF HERNIA IN CHILDHOOD.*

BY GEORGE HEATON, M.B., F.R.C.S.
SURGEON TO THE GENERAL HOSPITAL AND TO THE CHILDREN'S HOSPITAL, BIRMINGHAM.

THE treatment of rupture at any period of life is a subject of much practical importance to the surgeon; but during childhood it has added to it a special importance of its own, and this mainly owing to two causes—firstly, the great frequency of the trouble in young children, and secondly, its ready curability at this early age.

Its comparative frequency in young children is well recognised by all authorities. Every year at our out-patient department of the Children's Hospital between three and four hundred children are brought to us for advice for this disability alone. Statistics show that the percentage of ruptures is larger during the first year of life than at any other period. This percentage grows less year by year up to the age of 12 or 13, after which the tendency again begins to increase. The explanation of this fact lies in the tendency which exists in early childhood towards spontaneous cure. The normal process of obliteration of fœtal structures, though delayed, still goes on slowly, and gradually closes up the præter-natural openings. This fact must never be lost sight of when the question of submitting a child to any of the more heroic methods of treatment is being discussed.

* A Paper read before the Queen's College Medical Society, November 15th, 1895.

The Diagnosis.—Almost every swelling which presents itself in the groin or scrotum of a child is thought by its friends to be a rupture. It is therefore necessary to be on one's guard, and to carefully examiue each individual case. During the last three years I have been asked to fit trusses on hydroceles, inflamed testicles, encysted hydroceles, testicles retained in the inguinal canal, abscesses, and enlarged glands in the groin, and even on a psoas abscess.

In young children—that is to say under 18 months old—it is not uncommon to find one tunica vaginalis still communicating with the abdominal cavity. Fluid drains from above into this cavity, forming what is called a congenital hydrocele. The opening however is usually so very small that the swelling is only very slowly reducible, though it has a distinct impulse. The diagnosis from hernia may usually be made by its extreme translucency and the very gradual way in which it is reducible.

Then, again, an undescended testicle in a young child is frequently mistaken for a hernia. Here the absence of the organ from the scrotum, its shape, size, irreducibility, and want of impulse should render the diagnosis easy. But we must remember that such partially-descended testicles are frequently complicated with herniæ.

The Prognosis.—The most important question from the point of view of the patient and his friends is the question of prognosis. "Will it cure him in time or will it be necessary for him to wear an instrument all his life?" is the question frequently asked. It is a question which is very difficult to answer, and such answer as is given will depend upon several circumstances in each particular case.

1. First of all the age of the child. The earlier methodical treatment is begun the more favourable the prospect as regards ultimate cure. The exact percentage of patients actually cured by trusses cannot well be ascertained, as patients cannot be kept under observation long enough, but it is considerable. There is, however, always a greater tendency throughout life to hernia in patients who have had ruptures during childhood.

2. The nature of the hernia. Umbilical hernias in children practically always get well if properly looked after. Femoral hernias, on the contrary, rarely, if ever, disappear spontaneously or are *cured* by truss. The prognosis in inguinal hernias is somewhere between these two.

3. The sex seems to have some influence. Inguinal hernias in girls can usually be cured by truss.

The *treatment* proper of hernia may be simply palliative or aim at complete cure. In adults, in the majority of cases, we only attempt a palliative treatment; but in children, where cure is easier and simpler, no effort should be spared to prevent the little patient growing up to manhood with an uncured rupture.

The first thing to be discovered is whether the rupture owes its existence or is being kept up by some straining effort on the part of the child, and to correct any cause of such straining. In infants, great attention must be paid to any digestive disturbance. The straining efforts of a child during an attack of colic or diarrhœa will baffle the best-made truss.

A tight phimosis, causing straining efforts at micturition, threadworms in the rectum, a highly acid state of urine, are all conditions which, if present, must be remedied or removed before we can hope for success in our local treatment. Great attention must be given to keeping the bowels regular.

Bronchitis in young children is a potent exciting cause of hernia, and will cause a hernia where it already exists to defy all our attempts to keep it up. It is extremely annoying sometimes to see an attack of bronchitis bring down a hernia again as large or even larger than ever, which we had almost looked upon as completely cured.

For infants and children under the age of two years the best form of truss is a well-applied soft worsted one. It is cheap, washable, durable, unirritating, and when carefully applied very efficient. Several must be kept in readiness, and each one changed directly it is wet or soiled. In this way any chafing of the skin can almost always be avoided. It has become the fashion of late years in some places to decry their use as both inefficient

and productive of a troublesome eczema. I can only say that at the Children's Hospital I have found them of excellent service. Leather ones in very young children are so difficult to keep clean and dry, and so soon become too small for the patient as almost to preclude their use, even where expense is of no consideration.

After the age of two years a well-made spring truss, covered with leather, should be applied. In this connection let me plead for a little more attention on the part of the doctor to the fitting of a truss. The surgical-instrument-maker and mechanician is gradually usurping the place of the family doctor in the management of hernias, just as the prescribing chemist and druggist is striving to do in the treatment of disease. To him all swellings in this region are ruptures, and all ruptures, whether reducible or irreducible, inflamed, incarcerated or strangulated, require the same truss. The pad of the truss should lie along the inguinal canal if the hernia be an inguinal one, with its inner end just touching the pubic spine, while its spring passes round the groin and back, midway between the iliac crest and the great trochanter. The spring should be just strong enough to keep up the hernia in all positions.

In children, in whom a cure of the hernia is aimed at, the truss is to be worn night and day. Two should always be kept one for night with a very light spring, and one for day use. It should be removed at least twice every 24 hours while the child is washed, and the skin of that region after drying should be bathed with a little weak spirit and water, and then dusted with some fine boracic powder. Great pains must be taken to prevent the hernial contents from ever descending. Each time they are allowed to descend, all the natural processes towards cure which have already taken place are rendered futile, and a fresh beginning has to be made. In some cases it is probable that the truss by its pressure sets up a plastic inflammation at the neck of the sac, which assists in securely sealing off the cavity of the hernial sac from that of the peritoneum.

The process of cure by truss is a long, expensive, and laborious one: expensive, because as the child grows he frequently outgrows his truss and requires a larger and perhaps stronger one; laborious, because of the minute attention to detail required on the part of the medical attendant, and the great care and patience on the part of the mother or nurse, if their efforts are to be successful.

Radical Cure.—Operative procedures for the cure of ruptures date back into far antiquity. Heliodorus, who lived during the reign of the Emperor Trajan—at the beginning of the second century—describes in detail an operation he used to practise, and which very closely resembles one of the best modern methods. [The sac was exposed, isolated, and opened. It was then carefully to be separated from the spermatic cord as high as its neck. The neck was then sealed off by twisting it, and the fundus itself of the sac excised.]

One of the oldest and most vaunted cures in our own country, and one which was practised by country people for centuries, is interesting from the superstition which surrounded it. It was called the "ash cure," and is thus described by Gilbert White in his Natural History of Selborne.

"In a farm yard near the middle of this village (Selborne) stands at this day a row of pollard ashes which, by the seams and long cicatrices down their sides, manifestly show that in former times they have been cleft asunder. These trees, when young and flexible, were severed, and held open by wedges, while ruptured children, stripped naked, were pushed through the apertures under a persuasion that by such a process the poor babes would be cured of their infirmity. As soon as the operation was over, the tree in the suffering part was plastered with loam and carefully swathed up. If the parts coalesced and soldered together, as usually fell out where the feat was performed with any adroitness at all, the party was cured; but where the cleft continued to gape, the operation, it was supposed, would prove ineffectual."

Perhaps the cure of hernia without operation, advertised so

persistently in several of our daily papers, has something in common with this. At any rate, it is probably equally effectual.

Since then numberless operations have been devised with the same object; some by means of injecting fluids into the sac, some into the tissues around the sac, others by subcutaneous twisting or ligature of the sac, others by open incision and exposure of the parts. The only operations now in vogue all involve an open exposure of the sac, and differ from one another in the various methods of treating the sac, the inguinal canal, and the abdominal rings.

The question of radical cure of hernia is an extremely vexed one. The literature on the subject is voluminous, and the opinions as to the value of the various procedures most diverse and contradictory. While some surgeons would advocate operation upon all children with hernia, others maintain that it is scarcely if ever called for or even justifiable, and that even when performed, most uncertain and disappointing in its results.

In this, as in most other matters upon which we find such diverse and contradictory views are held, the safest course to adopt is a medium one; and while not allowing ourselves to be led away by an operative temerity, we should not allow a timorous dread of the operating knife to bias our better judgment. Each case must be judged on its own merits, and in each case there should be some definite reason for discontinuing the palliative treatment by truss or for recommending at once some more radical measure before we give our consent to or advise operation.

There are several conditions which may call for a more radical mode of treatment than that by truss:—

1. *Firstly the age of the patient.*—It is extremely unlikely that a rupture which has not been cured by a truss at the age of eleven or twelve will ever get well by the aid of a truss alone. The patient is then doomed to wear a truss all his life unless some other method of cure is adopted. Amongst the wealthier classes of society it is then a question for the parents to decide whether to allow the child to undergo the slight risk inseparable

from any operation in the hope of effecting a permanent cure, or whether he should go through life wearing a truss. But amongst the poor, the continually recurring expense of a new truss and the hard manual labour which such young patients will be called upon to perform when they grow up, will guide us in strongly urging the importance of some radical operation. In fact I would now go further, and in all cases where a child has systematically and carefully been treated by truss, and the hernia remains as large as ever at this age, I would strongly urge an operation.

2. *The Social Condition of the Patients.*—Among the poorer classes of our big towns there is, quite apart from the question of expense, very frequently a disinclination and a distrust of any method of treatment which does not quickly show manifest results. For this reason it is quite impossible in many instances to persuade the parents of these children to adopt any such slow and gradual method of cure as that by truss. In such cases it is quite justifiable if the child is in other respects a fit and healthy subject for operation, to at once perform some method of radical cure. Besides this, the constant attention which a truss requires, and the difficulties experienced in obtaining new ones, renders such a method of treatment sometimes a matter of impossibility amongst the very poor.

3. *The Hernia itself.*—A hernia is occasionally so large, the impulse so strong, and the internal and external abdominal rings so large, that no truss will keep the intestine from descending into its sac. In such a case operation is both justifiable and called for.

Strangulated and Irreducible Hernia.—Strangulation of a hernia is very uncommon in young children, and even when strangulated a hernia in a child under two years rarely if ever needs herniotomy. Rest in bed and a single or two minims of tincture of opium will almost always cause such hernia to spontaneously become reducible. But when herniotomy is necessary it should always, if the patient's condition will allow it, be completed by performing a radical cure. Irreducible hernias are not common in children, but do sometimes occur.

In two cases on which I have operated the cause of the irreducibility has been a piece of omentum which had become adherent to the fundus of the sac. Such herniæ are of course quite incurable by truss, as the canal is kept permanently open by the unreduced omentum, and should always call for operation.

5. *Hernia complicated with a Testicle retained in the Inguinal Canal.*—In these cases the presence of a truss can seldom be borne, as it presses directly upon the retained organ and at the same time tends by its pressure to prevent its descent into its normal position. Trusses have been invented having a concavity in the lower end of the pad to avoid such pressure, but they are of little use. The best course in such a case is to remove the retained testicle, and at the same time to perform a radical cure of the rupture. I have had to do this on four occasions, and in each case have found the testicle on removal undersized and mal-developed.

The term Radical Cure is an unsatisfactory one, for no matter how successful the immediate result of the operation may be, relapses occur in a certain number of cases after an interval—in some cases of years, in some of only a few months. But here, again, the prognosis as to ultimate cure is much better in children than in adults.

The best-known methods of the modern operation differ from each other in the details in the treatment of the sac and the closure of the external and internal abdominal rings and the inguinal canal. The more important of them are those described by Professor MacEwen, Mr. Mitchell Banks, and Mr. Barker. Each method has yielded excellent results in the hands of its originator; each has much to recommend it.

We must not forget the natural tendency which exists in children towards a natural cure even in performing an operative cure; and for this reason the simplest operation which will completely remove the hernial sac is to my mind the best, and I seldom if ever do anything else when operating upon such patients.

When the hernia is an acquired one the operation is sim-

plicity itself, but when of the congenital variety, is at times extremely tedious and troublesome.

An oblique incision is made with its centre over the external abdominal ring; the spermatic cord is exposed, and the empty hernial sac then sought for in the loose fat surrounding it. This in small hernias is often the most difficult part of the operation. When it is found, each covering is cut through with a sharp scalpel until the thin peritoneal sac alone remains. Unless this peritoneal sac itself is exposed, it will be found very difficult to separate the hernia from the constituents of the spermatic cord; but if the peritoneal sac itself be laid bare, it can usually be peeled out from its bed with the greatest ease. It is then opened to see if it is quite empty. If it contain any adherent omentum, this is ligatured and cut away. The hernial sac is then separated from its connections up the inguinal canal as high as the internal abdominal ring, and a carbolised silk ligature is placed lightly round its neck. The sac is then cut away below the ligature and the wound closed. No attempt is made to suture the inguinal canal or the pillars of the external ring.

When dealing with a congenital hernia, where the intestine has passed down a patent funicular process into the tunica vaginalis, far more difficulty is experienced. Kraske and some other operators recognising the extreme difficulty of separating the cord from the hernial sac have recommended removing the testicle with the hernia in all such cases. Such a proceeding is however generally considered to be unjustifiable. The best mode of dealing with such a sac is to cut it across just above the epididymis. The lower fundus of the sac is then closed with a continuous suture and thus a new closed tunica vaginalis is made for the testicle. The upper or funicular portion is then to be carefully dissected from the vas deferens and the other constituents of the cord as high up as possible and ligatured at its neck. This is an operation which in many cases requires the greatest care and patience to avoid injury of the important structures so intimately adherent to it.

The after treatment of these cases is of great importance if the case is ultimately to be a permanent cure. As a rule, in

children, unless the parts have been much disturbed, it is better to close the wound completely without a drain. The drainage tube while it provides an exit for blood and serum, serves also occasionally as an inlet for urine, unless the little patient be kept scrupulously clean and dry, and this may be the means of infecting the wound. The child should be kept in bed on his back for five or six weeks, while the parts consolidate; but if this is impossible he should wear a very light truss for three months while the operation scar becomes strong.

The risks of such an operation when carefully performed are practically nil. Professor McEwen has published a record of 81 cases without a death. My own cases now number 40, and I am pleased to say I have never yet lost a case. Of these 40 cases 17 were upon adults above the age of 12 years, and so are excluded from this paper. The remaining 23 cases, which are tabulated below, have all been in children under the age of 12 years, and the operation has in every case been undertaken owing to failure on the part of a truss to effect a cure after a prolonged trial, or owing to the presence in addition of some other deformity—such as an undescended testicle—which has prevented the proper treatment by truss.

An endeavour has been made to follow up the after history of each of these cases, and this has been possible in the large majority of the cases. Some few however have been lost sight of.

The result of the operation is given as far as it has been possible in the last column of the table. From this we find that of the 23 separate herniæ operated upon some suppuration occurred in three of the cases, and another case during convalescence contracted erysipelas, which caused the wound to break down. In the remaining 19 cases a primary union of the wound was obtained.

The after history, so far as it can be obtained is as follows:—There was a relapse soon after operation in one case, and in two others some months afterwards. Of the remaining 20 cases the hernia has been permanently cured in every case where it has been possible to trace the after history of the child, and all save one have ceased to wear any kind of support.

TABLE OF RADICAL CURES OF HERNIA.

	Initials.	Sex.	Age.	Date.	Place.	Description of Hernia.	Details of operation.	Result of operation, immediate and afterwards.
1	H. C.	M.	5	April 20, 1891	General Hospital	Irreducible acquired hernia. Rt.	Omentum in sac ligatured & excised. Sac ligatured with silk at its neck and excised. Wound not drained	Primary union. Light truss worn for six months
2	A. P.	M.	5	Nov. 11, 1892	„ „	Funicular hernia. Rt.	Sac dissected from cord and ligatured at its neck	Primary union
3	R. B.	M.	1	Jan. 13, 1893	Child'n's Hospital	Irreducible epiplocele. Rt.	Same operation as No. 1	Primary union. Some orchitis
4	F. P.	M.	10	Aug. 8, 1893	General Hospital	Congenital hernia. Rt.	Fundus of sac left as a tunica vaginalis. Rest of sac dissected away and excised	Primary union. Seen July, 1896. Cure remains perfect
5	C. P.	M.	2	Aug. 15, 1893	„ „	Very large acq'd. hernia. Rt.	Usual operation. No drain	Primary union. Seen July, 1896. Cure remains perfect
6	P. H.	M.	6	Aug. 25, 1893	Child'n's Hospital	Congenital hernia. Rt. Large	Same as No. 4. Much adherent omentum in sac. Ligatured and excised	Primary union. Some orchitis
7	R. I.	M.	4	Feb. 2, 1894	General Hospital	Congenital hernia. Rt.	Usual operation. No drain	Primary union. Seen July, 1896. Cure remains perfect
8	J. P.	M.	5	May 9, 1894	Child'n's Hospital	Irreducible cong. hernia. Left	Same operation as No. 4. Adherent omentum excised	Some suppuration at upper angle of wound. Seen July, 1896 Cure sound
9 9 10	W. C.	M.	10 mos.	May 11, 1894	General Hospital	Double acquired hernia. Very large	Two herniæ the size of oranges dissected out and excised. Operations at same time	Primary union both sides. Left side afterwards broke down. Seen July, 1896. Cure perfect both sides
11	J. H.	M.	3	June 26, 1894	Child'n's Hospital	Large acquired hernia. Rt.	Usual operation	Primary union
12	— —	M.	—	July, 1894	General Hospital	Funicular hernia. Left	Usual operation	Primary union
13	G. C.	M.	12	Oct. 12, 1894	Child'n's Hospital	Congenital hernia. Rt.. with retained testicle	Retained testis, removed with hernial sac	Primary union. Seen July, 1896. Cure sound
14	L. S.	M.	6	Oct. 26, 1894	„ „	Acquired hernia. Left. Trusses tried for 5 years	Usual operation. No drain	Primary union. Seen July, 1896. Cure sound

	Initials.	Sex.	Age.	Date.	Place.	Description of Hernia.	Details of operation.	Result of operation, immediate and afterwards.
15	G. B.	M.	8	Nov. 13, 1894	Child'n's Hospital	Congenital hernia. Rt., with retained testicle	Retained testis removed with hernial sac. No drain	Primary union. Caught erysipelas Dec. 1st. Wound broke down and healed by granulation. Seen July, 1896. Cure sound
16	P. H.	M.	10	March 2, 1895	General Hospital	Congenital hernia. Rt.	Same operation as No. 4. Much difficulty in separating cord from sac	Wound suppurated. Healed by granulation. Light truss fitted and worn up to July, 1896
17	F. B.	M.	3½	May 7, 1895	Child'n's Hospital	Acquired hernia. Rt.	Usual operation. No drain	Primary union. April, 1896, hernia appeared on opposite side. Right side sound, July, 1896
18	A.Mc.	M.	3	July 6, 1895	General Hospital	Congenital hernia. Rt.	Hernia strangulated 10 days before. Reduction by taxis. Same operation as No. 4. No drain.	Primary union except at upper angle of wound. Silk ligature finally discharged
19	G. S.	M.	4	July 13, 1895	„ „	Acquired hernia. Left	Some adherent omentum freed and returned. Usual operation	Primary union. Heard from July, 1896 Cure remains perfect
20	C. H.	M.	4	Aug. 31, 1895	„ „	Acquired hernia. Left	Usual operation. No drain	Primary union. Slight impulse returned 3 months after operation. Truss fitted
21	A. B.	M.	1½	Feb. 25. 1896	Child'n's Hospital	Acquired hernia. Left. All kinds of trusses tried	Usual operation. No drain	Wound broke down at upper part eighth day. Silk ligature discharged. Seen July, 1896. Cure sound
22	E. R.	F.	6	March 10, 1896	„ „	Congenital hernia. Left	Usual operation	Primary union. Silk ligature discharged six weeks afterwards. Seen July, 1896. Cure perfect
23	H. H.	M.	1½	March 29, 1896	General Hospital	Funicular hernia. Rt., very large. Trusses of no use	Usual operation. No drain	Primary union. Seen July, 1896. Cure sound.

VAGINAL OPERATIONS ON THE UTERUS AND ADNEXA.

BY THOMAS WILSON.

(Continued from page 85.)

VAGINAL HYSTERECTOMY.

By vaginal hysterectomy is meant the removal of the whole uterus by way of the vagina. This operation appears first to have been carried out in 1783 by Marschall, and in 1813 by J. C. M. Langenbeck, of Göttingen; in each of the cases the uterus was prolapsed and said to be the subject of cancer (Kaltenbach). Langenbeck dissected the uterus out of its peritoneal covering; the operation was a bloody one, and the patient very nearly died on the table, but recovered and lived for twenty-six years afterwards; *post mortem* examination established the fact that the uterus had really been removed. Sauter, of Constance, was the first to remove a cancerous uterus which was not prolapsed; the operation was done in 1822, and the woman lived for four months afterwards. Récamier was the first to lay down definite rules for the performance of the operation, especially for the ligature of the uterine arteries; this was in 1829.

The operation did not make much headway until the eighties. In 1881 Olshausen collected 41 cases of the operation with 29 per cent. mortality. In 1883 Engström collected 157 cases with 66 deaths, a mortality of 29 per cent. In 1886 Kaltenbach collected 257 more recent cases by seventeen different German operators, and remarked that the operation had at that time scarcely extended beyond the German empire; among the 257 cases were 60 deaths, or 23 per cent. At least 14 of the cases remained free from recurrence for more than two years. Since 1886 the operation of vaginal hysterectomy has come into daily practice throughout the civilised world; the technique of the procedure has been perfected; the indica-

tions for its performance have been extended into many fields of disease other than malignant; while at the same time efforts have been made to define with precision the cases for which the operation is suitable. This great extension has been amply justified, in the case of malignant disease at any rate, by the improved immediate results and by the favourable remote results which have been obtained.

INDICATIONS.

CANCER.

Of the indications for vaginal hysterectomy, that for cancer of the uterus is the most important and incontestable. The fact that the operation can now be done with a mortality not exceeding 5 per cent., and with a fair expectation of radical cure, renders it incumbent upon every practitioner to make the diagnosis of malignant disease at the earliest possible moment. Every wrong diagnosis may mean the loss of a life, and so may every late one. It is therefore an urgent duty to come to a correct conclusion as to the nature, malignant or benign, of the affection of the uterus in any given case, with the least possible delay.

The diagnosis is made by physical examination. The indication for making an examination is afforded by symptoms. There are no symptoms pathognomonic of cancer, though there are some which are very suggestive. Hæmorrhage, discharge, and pain are common to many female pelvic affections. The two former are the earliest symptoms of cancer, and are frequently accompanied by loss of flesh. The early complaints of bleeding and pain have in themselves nothing suggestive of malignant disease, but certain modifications of them point strongly in that direction. Thus, a well-recognised early symptom is *bleeding after coitus;* this is due either to direct injury of a cancerous sore, or to bursting of vessels caused by the active congestion called forth by the act; the same symptom is occasionally due to polypi, hyperæmic erosions, or to hæmorrhagic endometritis. Bleeding coming on some months or years after the menopause is also highly suggestive of malignant disease, although it some-

times is observed in polypi and chronic endometritis. Irregular bleeding is very common in carcinoma, but is not peculiar; it calls for examination in every case, however, and the older the patient the more urgent the need for close investigation. Discharge of bloody serum is an early symptom in many cases, and a suggestive one. It is necessary to bear in mind that cancer of the uterus may occur at any age from twenty upwards, and that the affection in young women is apt to run a rapid course. The large majority of cases occur in the years before and after forty, and any irregular or increased bleeding from the uterus at this age renders imperative an immediate careful examination.

RECOGNITION OF CANCER IN THE EARLIEST STAGES.

The physical examination differs in different cases. The cancer may grow in the vaginal portion of the cervix, in the cervical canal, or in the body of the uterus; in either of these positions it may begin as a nodule or ulcer.

a. When the disease is situated on the surface of the vaginal portion, and in the cervical cases where the external os is either patulous or is affected by the disease, the recognition of the nature of the affection is comparatively easy. The examination consists in (1) digital exploration, (2) visual examination, (3) the use of the curette, and (4) the microscopic examination of an excised fragment. In the later stages, of course, digital exploration is all that is necessary, but in early and doubtful cases all the methods of examination will be required.

1. Digital exploration will show the presence of a nodule or ulcer. The nodule may be of the size of a pea, bean, or larger, and is characteristically hard, the hardness being like that of cartilage; even in the earlier stage the hard nodule will be felt to be raised above the surrounding surface. The nodule is single, but may have an irregular surface, and this may cause an impression of more than one nodule. Ovula Nabothi also give the impression of hardness, and are raised above the surface, but they are multiple as a rule, and on being punctured give exit to a colourless mucous fluid, the raised hardness then disappearing.

In cases of infiltrating carcinoma the cartilaginous consistence is marked, especially when compared with other portions of the cervix which may have remained normal; the shape of the cervix becomes broader and deformed. Where an ulcer is present it is felt as a depression below the surface, with hard, often irregular and somewhat raised edges, and uneven granular base, bleeding easily on examination.

2. Visual examination through the speculum is the next step in the investigation. Where a nodule is covered by mucous membrane the latter appears of bluish colour, with sometimes yellowish spots. An ulcer will appear in the earliest stage in the form of a fissure, with irregular, usually somewhat raised edges, and dirty yellowish grey base; or instead of the normal surrounding of the external os, a jagged ulcerated border may be seen.

3. Where the change is extensive enough it is easily made out that the tissue forming the base of an ulcer is readily broken down, granular, friable. In the earlier stages this consistence can be easily proved by the use of the curette. Any breaking down of tissue caused by its means is very suggestive of cancer.

4. In any doubtful case a portion of the suspected tissue should be excised and examined under the microscope by a competent pathologist. The cervix is exposed in a Sims' speculum, and drawn down with volsella. A wedge-shaped piece of tissue, with the base on the surface of the uterus, measuring about one-third of an inch each way, and so situated that about half of it is in the suspected tissue and half in healthy, is removed by knife or scissors after the vagina has been disinfected. Any bleeding is controlled by one or two catgut sutures placed so as to close the wound, and a light tampon of iodoform gauze is introduced. The number of doubtful cases, in which microscopic examination is necessary for diagnosis, diminishes with increasing experience, but in any case where there is the slightest ground for hesitation in forming a conclusion, this mode of examination, at once harmless and certain, should never be omitted.

β. Where the disease is situated in the body of the uterus or in the cervix, the external os not being patulous, the physical examination has to proceed on somewhat different lines. Digital and bimanual examination give no satisfactory information in the early stage in this class of cases; in the more advanced stages the uterus becomes enlarged, harder in consistence, sometimes irregular; but the same changes are observed in myoma or in metritis. The diagnosis in these cases can only be made by examining the cavity. This is done (1) by the sound; (2) by the microscopic examination of scrapings obtained by the curette; (3) by digital exploration.

1. The sound should first be used, and if with its help the lining of the cavity is observed to be smooth and regular, the presumption is against malignant disease, and palliative treatment may safely be tried unless the symptoms be unusually suspicious. If, on the other hand, there is present circumscribed or diffuse hardness, raised or depressed with relation to the surrounding surface, further examination is immediately called for. Sometimes there is a feeling as if the point of the sound penetrates the tissues; this is observed in fungous endometritis as well as in cancer.

2. In any doubtful case the microscope is the reliable means of diagnosis. The pieces for examination should be obtained by a curetting carried out in a systematic manner, the whole surface of the uterine and cervical cavity being gone over in order, and the pieces carefully collected.

3. In the more advanced cases the finger introduced through the dilated cervix will enable a diagnosis to be made. A circumscribed or diffuse nodular thickening may be felt in the wall of the uterus, or an ulcer may be present with hard irregular edges and base, or the cavity may be filled by villous papillary growth, or by a tumour with rough surface and friable in consistence. In the early stage a cancer beginning in the mucous membrane may escape recognition by the finger. Digital examination further may be rendered difficult and uncertain by the tight internal os gripping the finger, and thus impeding

its movement and diminishing its sensation. The examination by means of the curette and microscope is therefore the most generally reliable means in all these cases.

The examination of cases of malignant disease of the uterus in the early stage has been treated at some length because of the great and increasing importance of early diagnosis. It is essential that improved results as regards early recognition shall be obtained, in order that our patients may gain the unquestionable advantages of vaginal hysterectomy. If the improvement in diagnosis can only be made proportionate to that obtained during the last ten years in the technique and results of the operation, then vaginal hysterectomy for cancer of the uterus will become one of the most extensive and important triumphs of modern surgery.

OPERABLE OR INOPERABLE?

In the more advanced cases the question arises as to whether the disease has progressed too far for operation. The answer depends on the condition of the surrounding tissues. If the disease is confined to the substance of the uterus itself, then it can and should be removed. If, on the other hand, the surrounding connective tissue is invaded no attempt at radical cure need be made, because it will surely be useless, and may be harmful. If the infiltration of the surrounding tissues has taken place to a large extent, the uterus will be fixed; this is however a late and therefore not very valuable sign. The growth may have extended to one broad ligament, or to the bladder or rectum, and still the uterus preserve a considerable mobility.

The most useful method of examination is by the rectum, and should in any doubtful case be made under an anæsthetic. In any event the first step when the patient has been anæsthetised for vaginal hysterectomy should always be to make a thorough exploration of the surroundings of the uterus. One hand is placed on the hypogastrium; the forefinger of the other is passed into the vagina, and the middle into the rectum;

or two fingers into the rectum and the thumb in the vagina. The rectal finger or fingers must be passed through the ampulla, and then through the third sphincter (Kohlrausch's folds) to the back of the uterus. The vaginal and rectal fingers acting together with the external hand can then very fully explore the connective tissue surrounding the cervix, that running outwards at the base of the broad ligament, and that forming the utero-sacral ligaments. Extension of growth into these tissues will be recognised by the presence of nodules or cords of cartilaginous hardness. Care must be taken not to confound with these the string-like cicatrices radiating from the cervix which are so often observed and are the result of old cellulitis. In some cases the tissues are found to be somewhat thickened and of more or less firm fleshy consistence; in these it must remain for the present doubtful whether we have to do with early diffuse cancerous infiltration, or with the early irritative changes forming the so-called "pre-cancerous stage." In one or two cases of this kind the operation has been followed by a satisfactory result, and it seems right that the patient should have the possible benefit of the operation until increased experience settles the point definitely. Where there are characteristic nodules or cords no radical operation should be attempted.

SUPRA-VAGINAL AMPUTATION OF THE CERVIX, OR VAGINAL HYSTERECTOMY.

In cases of disease limited to the cervix, and especially to its vaginal portion, the question arises which of these two operations is the suitable one. At the present time the great majority of gynæcologists are in favour of hysterectomy. It is said, in the first place, that in every case of malignant disease the whole organ should if possible be removed. This statement must be taken for what it is worth; the variety of malignant disease, and the structure, relations, and importance of the organ require to be considered in every case. In the case of the uterus, the organ is very richly supplied with lymphatics, and this renders the spread of a carcinoma in its substance easy and

rapid. In addition, therefore, to the difficulty of deciding the safe limit at which the uterus must be divided in supra-vaginal amputation of the cervix to ensure the removal of the whole obvious disease, there is also the risk that microscopic foci may be already present at a distance from the primary seat of disease. The strongest argument in favour of total extirpation is founded on the occurrence of a second focus of disease in the fundus of the same uterus separated from that in the cervix by a greater or less extent of healthy tissue. This has been observed in at least twelve cases. In order to ascertain whether amputation of the cervix will suffice, it will thus be necessary in any given case of cervical cancer to explore the cavity of the uterine body; and even this means will only give approximate certainty. On the other hand, the only real advantage of amputation of the cervix over total vaginal hysterectomy—that, namely, the peritoneal cavity is not opened—has no weight at all at the present time, when antiseptic methods can be employed with so much certainty. Add to these considerations the fact that at the present time hysterectomy is attended by a mortality which is little if any higher than that attending amputation of the cervix, and it appears to be unquestionable that the removal of the whole organ is the correct practice in the case of uterine cancer, whether of the body or cervix.

FIBRO-MYOMA.

The ideal operation in fibro-myoma, as in all other simple tumours, is one which shall remove only the tumour itself, leaving the organs intact. This is in most cases impossible, because sometimes of the multiplicity of the tumours; but in the majority of cases requiring operation it is the impossibility of dealing safely and certainly with the bleeding which takes place from the bed of the tumour that renders it necessary to remove the uterus at the same time.

In cases of fibro-myoma of moderate size requiring operation, favour is at present divided between removal of the appendages and vaginal hysterectomy. The general indications for the

operative treatment of these tumours are (1) severe bleeding, such as to interfere with health and occupation; (2) severe pain; (3) rapid growth of the tumour; (4) symptoms of incarceration in the pelvis; (5) ascites; (6) cystic or malignant degeneration; (7) suppuration and sloughing; (8) beginning degeneration of the heart secondary to the growth of the tumour.

In tumours belonging to these classes up to a moderate size—say that of a fœtal head, or not extending further upwards than the umbilicus—removal of the appendages has been a very successful operation both as regards mortality and in its remote results. With rare exceptions the tumour ceases growing and gradually becomes smaller; hæmorrhage stops entirely at once or after a few months; and the patient rapidly returns to good health. Pressure symptoms are relieved, as in cases recorded by Cullingworth and in a case of my own, where the patient had had attacks for four and a half years of retention of urine owing to pressure on the neck of the bladder, the last attack having lasted five months; the power of the bladder was gradually and completely regained within ten days, and there has been no further difficulty. The operation is however not unfrequently followed by the extrusion of a polypus, accompanied by severe pain and hæmorrhage; this may occur months after the operation. In the case just mentioned, a small tumour the size of a walnut was discharged with suppuration breaking through the abdominal scar fourteen months after the oöphorectomy, the patient in the meantime having enjoyed very good health. In not a few cases it is found to be impossible to remove both ovaries, and the removal of one is of course useless. In addition to the chance of untoward accidents such as these, it is urged that the operation is at best an indirect one, and the patient is apt to be perturbed in mind by knowing that she still has her tumour.

In the same class of cases vaginal hysterectomy has the advantages of being a direct operation, of removing the disease at once and for all and rapidly restoring the patient to health,

and of preventing the possible occurrence of the annoying accidents just referred to. The operation is not more difficult than that of double oöphorectomy; either operation is easier in proportion to the small size of the tumour; the mortality is about the same in the case of each operation, and should not exceed five per cent. The improvements which have been made in technique, and the low mortality, have led to the extension of operative treatment far beyond the limits indicated above; indeed some operators in America and on the continent advocate operation in every case where fibro-myoma is diagnosed, so as to ward off the possible future evils. This practice must lead to the performance of many unnecessary operations, and is not likely to be followed in this country at any rate. Operation is only required, and should only be practised, in cases where there is some definite indication; and in small and moderate-sized tumours suitable for either operation, vaginal hysterectomy is preferable to double oöphorectomy.

PELVIC INFLAMMATION.

Vaginal hysterectomy has been recommended and carried out in many varieties of pelvic inflammation. In acute inflammation following childbirth, where the affection has seemed to be limited to the uterus, that organ has been removed and the patient has survived. This proceeding is not likely to be extensively imitated. In the event of a favourable result the probability must be recognised that tonics, stimulants, and uterine douches might have been equally successful. The difficulty of making reasonably sure that the mischief is really limited to the uterus is in the acute stage insuperable, and the operation itself is a serious one to carry out at the height of a septic disease; in fact, one cannot help wondering in regard to the patients who survive this treatment, whether their recovery is not in spite of rather than in consequence of the operation.

In the case of chronic bilateral inflammation of the uterine appendages, the operation has been recommended (1) in cases without suppuration and (2) in cases attended by suppuration.

In the first group, where there is no suppuration, the operation has been, in respect of the low mortality which has attended it, highly successful, as might be expected. The arguments in its favour have been that the uterus is superfluous after both sets of appendages have been removed; that the uterus is the way by which the disease has spread, is therefore diseased itself, and should be removed; that if not diseased now it may again become so, and in either case lead to infection of the stumps of the broad ligaments or the ligatures, and thus either to suppuration or recurring peritonitis; and that if vaginal hysterectomy be done there is no risk of an abdominal sinus or fistula. Against these arguments it is urged that vaginal hysterectomy offends against one of the first principles of surgery by removing more than the diseased tissues; that the uterus has often again become healthy, even though an attack of inflammation in it has caused the disease of the appendages; that laparotomy in these cases is quite as successful in its immediate results; that we have no proof that the sudden removal of an organ such as the uterus does not make more difference to the whole organism than does the process of slow and gradual atrophy which takes place after removal of the appendages; and that even if some metritis be present it usually yields readily to caustic applications or curetting. A further strong argument is that after the uterus has been removed during operation in cases of this kind it may be found that it is not necessary to remove both sets of appendages, and hence that the uterus has been removed unnecessarily. On the other hand, laparotomy lends itself to the easy and certain recognition of the extent of the disease. The conclusion is that vaginal hysterectomy is not a suitable operation for cases of bilateral inflammation unattended by suppuration.

In the second class of cases of pelvic inflammation, in those namely which have gone on to suppuration, there are several cases for consideration. In one group of cases a single considerable abscess is formed, which may be intraperitoneal, or situated in the pelvic connective tissue; in this group the correct treatment is evacuation by incision, which may be made through

the vagina, or through the anterior abdominal wall, either including the peritoneum, or pushing this out of the way, according to circumstances. In another group we have to deal with a collection of pus in the Fallopian tube or ovary of one or both sides; in these cases if the uterus be first removed, and it be afterwards found that it is not necessary to remove both sets of appendages, an unnecessary mutilation will have been made; in this class laparotomy is clearly preferable to vaginal hysterectomy, unless the latter is attended by a much smaller mortality; and even if the mortality be smaller the indication is to endeavour to improve the technique of the less mutilating operation.

In another and much less common group of cases the uterus continues long after the acute stage of inflammation to be fixed in a hard mass of exudation, scattered through which abscesses of greater or less size are found in tubes, ovaries, peritoneum and cellular tissue; in such cases as these long continued rest and absorbent treatment fail to bring about resolution, and the patient continues to be unfit for work or enjoyment. It is in this class of inflammatory cases that vaginal hysterectomy has a legitimate application. The operation may be performed alone, as recommended by Péan, in which case it has been called "uterine castration"; or the ovaries and tubes may be removed at the same time with the uterus, as recommended by Landau and others. In either case the proceeding is one of extreme difficulty, since the uterus is firmly embedded in the hard unyielding exudation and cannot be lowered to the vulva. As Pozzi has pointed out, it is only in those cases of pelvic inflammation where vaginal hysterectomy is most difficult, that it is justifiable.

PROLAPSE AND INVERSION.

In certain cases of prolapse and chronic inversion the uterus has been removed. In the latter affection the operation is indicated where symptoms continue and where reduction cannot be obtained after repeated careful trials; or where the inverted uterus is the seat of malignant disease, which itself

calls for removal. In prolapse vaginal hysterectomy has been recommended by some enthusiasts in severe cases occurring near or after the menopause. Where the uterus is not affected by disease which of itself calls for amputation, the proceeding is both useless and unnecessary. In cases in which the operation is done by itself, vaginal and vesical prolapse almost invariably come on again soon after the operation; and where hysterectomy is accompanied by colporrhaphy and perineorrhaphy as is recommended by those who are most in favour of the operation, the removal of the uterus is at least unnecessary, and may be injurious by weakening the pelvic floor. The argument that it does not weaken the pelvic floor, inasmuch as after vaginal hysterectomy the uterus does not as a rule prolapse, is obviously fallacious, because the conditions which lead to prolapse are not necessarily present in cases where hysterectomy is indicated. The operative treatment of prolapse consists in perineorrhaphy and some form of colporrhaphy, accompanied by amputation of the cervix where necessary, and possibly in some cases by vaginal fixation.

SECONDARY HYSTERECTOMY.

In some cases of pelvic inflammation where laparotomy has failed to relieve symptoms, or where the infected stump of a tube or a ligature is keeping up an abdominal sinus, vaginal hysterectomy has been recommended and carried out. In some of these cases the ligature may be hooked up with a curette or probe from the cavity in which it lies loose; in some others a counter-opening through the vagina may be successful; in a few the removal of the uterus is justifiable as a last resource. A similar secondary hysterectomy is necessary occasionally after myomectomy, as in a case where a pedunculated sub-peritoneal fibroid was removed by laparotomy; bleeding, pain, and illness continued and necessitated further operation two and a half years later; the uterus was then removed per vaginam by another operator.

PELVIC NEURALGIA.

Finally, vaginal hysterectomy has been recommended in some cases of obstinate and prolonged neuralgia of the pelvic organs. The absence of details of the remote results of operation in this class of cases renders it difficult to come to any conclusion as to its justifiability or the reverse. Oöphorectomy for neuroses is generally understood to have been a conspicuous failure, and there seems no reason to expect any better results from hysterectomy. Richelot, one of the most ardent supporters ot hysterectomy (Ann. de Gyn. xliv., 1895, p. 422), refers to a dozen cases, in addition to others previously published by him, in which the womb was removed through the vagina for inveterate neuralgia, and adds some details of three, presumably selected cases; in none of the three were there symptoms of hysteria. In two an infantile uterus was removed, in one case with complete success; in the other with complete failure to give relief to symptoms. In the third case a doctor's wife, aged 45, had suffered for twenty-two years, and had undergone much treatment; the operation was followed by some amelioration. Even Richelot admits that it is necessary to guard as far as possible against operating in cases where there are symptoms of neurasthenia, hysteria, or insanity. It appears certain that hysterectomy, like oöphorectomy, is a good and successful operation (from the curative point of view) in exact proportion to the amount of organic disease present, and that the removal of the uterus is certainly not indicated, and is with difficulty justifiable, in cases of functional disease.

(To be continued.)

ON THE ANTITOXIN TREATMENT OF DIPHTHERIA.

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THE very able and exhaustive criticism of the antitoxin treatment of diphtheria by Dr. Russell in the July number of the *Birmingham Medical Review* has induced me to make a few remarks on diphtheria generally and its treatment from the point of view of a practitioner during the last thirty years.

The first point I wish to notice is the difficulty of diagnosis. I am confident that this accounts for many discrepancies in the statements of different writers, and in many cases it is impossible to be quite certain that any given throat inflammation is or is not the dreaded diphtheria. This is most important, for diphtheria is a notifiable disease, and the very close resemblance it has to follicular tonsillitis and some other forms of inflammation of the throat makes it necessary that some clear definition should be given of the combination of symptoms which justifies us in regarding any given case as one of true diphtheria.

Billroth seems to regard diphtheria as a somewhat advanced form of croupous inflammation, "a condition in which the products of inflammation of a mucous membrane appearing on the surface form fibrin, and this becomes a membrane clinging to the surface, which after a time dissolves into mucus or pus, or is lifted up by the pus which is produced behind it from the mucous membrane. But in diphtheria the fibrinous layer is not only more firmly attached to the tissue but the serum permeating the substance of the membrane coagulates, the circulation is thus impaired so much that occasionally the affected part becomes entirely gangrenous."

The most evident sign of diphtheria at first sight is the presence of white patches on the fauces. However slight at first, the smallest white patch may become a real acute diphtheria.

If the patches are multiple, small, and circular, confined to one or both tonsils, and separated by intervals of healthy mucous membrane, the presumption is strongly in favour of the case being one of follicular tonsillitis; if, on the contrary, the patch is flat, situated on the pillars of the fauces or the uvula, or posterior wall of the pharynx, and with a tendency to spread, if it separates with difficulty and on separation leaves a red or bleeding surface with rapid re-formation of the membrane, if it be accompanied by glandular enlargement, pain on deglutition, much depression and deep congestion of the mucous membrane about the patch, there can be little doubt that we have to deal with a case of true diphtheria. Albuminuria may also be present in almost any case of throat inflammation. The prognosis should then be guarded and the treatment active. So far as my experience goes, suitable treatment will effectually arrest the progress of the disease at this stage, and although I would warn anyone against making too light even of a slight case, the practitioner need feel no anxiety as to the result if the treatment is efficiently carried out.

If, then, I were asked to formulate a definition of diphtheria, I should say it was a febrile disease characterised by the formation of a greyish white croupous exudation of the fauces, with a tendency to spread both widely and deeply and to produce secondarily a septicæmic condition of an extremely dangerous character. I believe that at first the disease is entirely local, but when general infection takes place the whole system is affected so that wounds in other parts of the body become coated with a similar firm membrane to that found in the throat. In medicine and surgery the present is emphatically the age of microbes. The study of the microbes of disease is extremely fascinating, and it is no wonder that to a specific microbe has been attributed the cause of diphtheria. This belief has penetrated to the lay public, as the following incident shows:—

Some years ago I was called to see a child, in a well-to-do family, who had all the symptoms of diphtheria. The mother had had some experience of the disease, and told me that some time previous she had lost a child from it while under the care

of an eminent practitioner of medicine. Another was taken ill, but in the meantime she was told by a neighbour that the cause of the disease was an insect that lived in the throat, and that if she puffed the throat with powdered sulphur it would be killed. She did so, and her child soon got well, so that no medical assistance was required. The case I attended terminated favourably in a few days, though I did not puff the throat with sulphur. I have, however, heard of similar cases, and I think they have been chronicled in the medical journals, but I have had no experience of this method of treatment.

It is a source of much regret to me that I have kept no record of the various cases of diphtheria, or of cases resembling diphtheria, which have come under my care. During upwards of thirty years I have had to treat a large number, but will only mention two or three of which I have a strong remembrance from the special circumstances connected with them. In the year 1865 there was an epidemic of diphtheria in a small town in Wales. In one family five children were attacked; two of them died under the care of an unqualified practitioner, the remaining three during the height of the disease were transferred to the care of the practitioner to whom at the time I acted as assistant. I had personal charge of them, and I am glad to say they all recovered. The treatment adopted was swabbing the throat frequently (every hour) with solution of chlorinated soda, with the administration of an ordinary saline fever mixture. Several other cases were similarly treated with a like result.

Coming to Birmingham a year later and starting in practice, I found diphtheria very prevalent. Dr. Heslop, with whom I saw many cases, was strongly in favour of forcibly removing the membrane, and the internal treatment by rather large doses of tr. ferri acetatis. I do not remember whether this was very successful or not, but I found that chlorate of potassium on the whole gave better results, sometimes combined with hydrochloric acid and sometimes alone. During this period I gradually found out that a combination of chlorate of potassium with bicarbonate seemed to be attended with even better

results, and for many years I have used no other drugs in the treatment of this disease, and in only one case has a fatal termination taken place. I have never had a case which has been followed by paralysis or any other sequela, although many of them have been severe enough to require tracheotomy. In four cases I have had to suck the tube to clear it of membrane, fortunately without any evil result to myself. In one case, for three weeks the membrane continued to form on the tracheotomy wound, but the patient ultimately recovered without any after effects. I had three rather severe cases in one house—a father and two children. Dr. Bell Fletcher saw them with me in consultation, and told me I might do whatever I liked with them, but they would all die. They were all convalescent in about ten days, and the only treatment was the free administration of the following.

℞	Potassii bicarbonatis - - -	gr. x
	Potassii chloratis - - - -	gr. x
	Glycerini - - - - -	♏ x
	Aquam - - - - -	ad ʒ

M. ft. haust., om. 2ndâ horâ.

This was the dose for an adult, of course somewhat reduced in the case of children; but I have always found that the more of the medicine they took, the more quickly they recovered, especially if the treatment was begun early.

For some years I have been in the habit of using the same prescription as a lotion to spray the throat with, and it certainly seems to exercise a favourable influence on recovery. It softens and clears away the membrane, and the discontinuance of the spraying is followed quickly by re-formation. In cases in which the membrane spreads along the nares, it is necessary to spray through the nostrils. The spraying should be done often—about every half-hour. Children, if not alarmed, may usually be taught to spray their throats, and often do it best themselves. I have heard objections to the above treatment on the ground that potash salts are "lowering." I cannot understand how the term has crept into use, but I have known educated

people, on seeing the prescription, decline to use it for that reason. It is a foolish objection which has no basis of fact of any kind to support it. As to the general treatment: I like the patients to take plenty of nourishment if they can, but deglutition is often very painful. Milk may often be allowed to trickle down the throat without the effort of swallowing; it is surprising how well some patients can manage to do this. I never give alcohol in these affections, because I found out some years ago that they did better without it. I think it was the late Mr. Bartleet who first pointed this out to me, and I am convinced that his opinion was correct.

The general result of the treatment during the last thirty years has been that with one exception all the patients recovered. In that case tracheotomy might have saved life, but it was too long delayed on account of the objections of friends. When permission was obtained the patient was moribund, and I did not perform it.

With such a record of success I should be sorry to adopt any other treatment, and therefore have little interest in the antitoxin method, of which hitherto I have had no personal experience. There seems to be some uncertainty about it, though the statistics show that under its use the general mortality has been reduced, but when compared with the numerous methods of treatment mentioned in Dr. Russell's article on pages 37 and 38 it does not impress one very strongly. I am quite unable to compare statistics of my cases with others, as I have kept no record of them, but I give the facts such as they are, and the effect on my mind has been to lead me to regard diphtheria as a disease which, carefully treated, is comparatively harmless, and is not entitled to so much attention as it has received.

NOTE ON EHRLICH'S DIAZO-REACTION.

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A VERY interesting paper on the subject of Ehrlich's Diazo-reaction by Dr. Hewlett appeared in the *British Medical Journal* in January, which promised much better results than most observers have hitherto obtained. I had hitherto carried out the reaction in a routine half-hearted way in suspected cases of enteric and many tubercular and pneumonic cases with very unsatisfactory results, but since adopting Dr. Hewlett's suggestions much better results have followed. The original method was to employ two solutions—(*A*) a saturated solution of sulphanilic acid in 5 per cent. aqueous solution of hydrochloric acid, and (*B*) a ·5 per cent. aqueous solution of sodium nitrite. For use from 25 to 40 parts of *A* are added to one of *B*, an equal volume of urine added, and the whole rendered alkaline with ammonia. Normal urine gives a picric acid yellow or an orange colour, but urine of enteric fever gives an intense red colour, and on shaking a pink froth occurs, and on standing for 24 hours a greenish precipitate occurs. In practice it had been usual to guess the proportions, which probably were often erroneous. And the experience was that it was not infrequent for cases of undoubted enteric to occur without giving the reaction, while cases of tuberculosis frequently gave it. Out of 71 cases of enteric in the Wolverhampton General Hospital last year fully ten did not give the reaction, as carried out in this way.

Observers differ as to the conditions under which the reaction occurs. Howard does not get it till the latter part of the first week, and finds that it may cease after the morning temperature has reached normal. He finds the reaction given, too, in cases of pyrexia, Bright's disease, valvular disease, chorea and phthisis. It is absent in acute general tuberculosis,

in pneumonia (both croupous and catarrhal) and diphtheria. He thinks both solutions should be freshly prepared.

Rütimeyer using it in 260 cases finds it useful in cases of phthisis as well as enteric fever. In phthisis it is found, and in this disease its occurrence indicates absorption of caseous matter, and hence rapid mischief. It is always present in acute general tuberculosis and occasionally in cancer, chronic nephritis, caries. Knight finds it not marked in tubercular cases, but distinct in measles and erysipelas. Edwards (Chicago) among 130 cases of enteric fever found two undoubted cases in which it was absent throughout. The average life of the test was thirteen days. He thinks the reaction unsatisfactory because the compounds with which diazobenzene-sulphonic acid unites are as yet unknown.

It may be as well at this stage to consider the chemistry of the reaction. In all communications and text-books I have seen, there has been no clear reference to this. So by comparing the reagents to those used in ordinary diazo-reactions I made the following conclusions as to the nature of the reaction occurring on mixing the reagents, and on enquiry from my friend Mr. J. E. Saul I find they are correct. "Sulphanilic acid" is anilinsulphonic acid $C_6H_4\begin{cases}NH_2\\SO_3H\end{cases}$ which notwithstanding its name and its acid reaction to litmus is a basic substance and unites with hydrochloric acid, forming sulphonaniline hydrochlorate $C_6H_4\begin{cases}NH_3Cl\\SO_3H\end{cases}$, which is present in Ehrlich's *A* solution. When *A* and *B* are mixed, the remaining free HCl liberates HNO_2 from the $NaNO_2$ of Ehrlich *B*, and the sulphonaniline hydrochlorate and the nitrous acid react in ordinary way, forming the appropriate diazo-compound, sulphon diazo benzene chloride, thus:—

$$C_6H_4\begin{cases}NH_3Cl\\SO_3H\end{cases} + HNO_2 = C_6H_4\begin{cases}N{=}N{-}Cl\\SO_3H\end{cases} + 2H_2O$$

This is the actual reagent of the test. Mr. Saul also informs me that the above compounds are para-derivatives (1:4) and

that the actual changes that occur in testing morbid urine are obscure, but probably analogous to those which accompany the formation of diazo dyes, for the production of which sulphanilic acid is used on the large scale. Dr. Hewlett informs me that Simon gives the final product of the interaction of Ehrlich's solutions *A* and *B* as $C_6 H_4 \begin{matrix} N \\ SO_3 \end{matrix} > N$, but this does not conform to the typical diazo-reactions with simple aniline salts.

The suggestions in Dr. Hewlett's paper that I have found so valuable are two. First, he emphasizes Greene's claim that the reaction is rendered much more delicate by using less $NaNO_2$ (*A* : *B* = 100 : 1 instead of 40 : 1). He says that with this modification phthisis and pneumonia do not give the reaction, while it remains distinct in typhoid and advanced malignant disease.

Secondly he states that the $Na NO_2$ solution should not be more than a day old, and should be preferably prepared each time it is used. As it would be almost impracticable to do this in ordinary clinical work, especially in a hospital where there are no clinical clerks, I got Messrs. Burroughs, Wellcome and Co. to make small tabloids of sodium nitrite (gr. $\frac{1}{100}$) with sodium chloride as vehicle. These readily dissolve in 100 ♏ or 6 cc. of Ehrlich A, forming the proportions advocated by Greene. Before adding the ammonia, the delicacy of the reaction is accentuated by shaking the liquid, so as to produce a froth. The red or pink froth in contact with the ammonia then contrasts with the white froth where the ammonia has not as yet penetrated. The liquid acquires a red colour, varying from that of a solution of eosin about the strength of ordinary red ink (without the green fluorescence) to that of port wine. It is not a true reaction when the fluid is red but the froth white. Much stress has been laid upon the green deposit by observers. The writer does not find this in more than half his cases, it often being pink or flesh-coloured.

The red pigment readily decomposes under ordinary circumstances, but the addition of an equal volume of absolute

alcohol, and filtering, causes it to retain its proper colour for some time. Shaking it up with ether, chloroform, or petroleum, has a still more permanent preservative action, though the use of chloroform should be avoided because it is accompanied by the evolution of small quantities of noxious gases, probably aromatic isocyanides. All my efforts to isolate the pigment have proved unavailing. None of the ordinary solvents that do not mix with water will take it up, and I cannot precipitate it. Evaporation to dryness very slowly at 37° C. resulted in a brown partially crystalline mass, which when digested in alcohol formed a brown solution (much residue remaining) which did not turn red on addition of ammonia. The red fluid gives a broad, indefinite absorption band in the bluish green of the spectrum, similar to that given by many other aniline dyes.

Since adopting the above method, twenty-nine cases of enteric fever have been under observation, and in every case the reaction was distinctly present. Some that came in during the first week did not show it at first. A remarkable fact is that many cases, admitted at all stages of the disorder, gave only a very faint reaction or even none on the morning following admission, whilst the next day, and throughout the illness subsequently, the reaction would be intense. It generally ceased when the temperature settled down, occasionally three or four days before final subsidence of pyrexia, and sometimes it continues for some days after the temperature has become normal. Under these latter circumstances I believe there is danger of a relapse. The following case illustrates this :—

F. P., admitted on the eighth day; reaction intense from the first. On the 31st day the temperature settled completely, but the reaction remained intense. On the 38th day it became not so intense, though still very marked, and on the 40th day a relapse occurred. On the 51st day the reaction definitely disappeared, and on the 54th day the pyrexia ceased, and though the urine has frequently been tested since, the reaction has not reappeared, nor has any rise of temperature occurred.

Rarely a reaction is given resembling in colour that of a

dilute solution of tropæolin in true enteric cases. It is not a pure pink like eosin, but mixed with orange, and it is difficult to distinguish from those urines that, as before stated, yield an orange colour. The only means of clearly differentiating them is to test the urine day by day, when if the case is one of enterica the true pink reaction will soon show itself; but if not, the orange colour will eventually be replaced by yellow. Two cases that at first looked very much like typhoid, persistently refused to give the reaction; but feeding them on solid food before the temperature settled gave rise to no bad results, and one of these had suspicious signs at one apex, and they were probably cases of mild tuberculosis that became quiescent.

Two other cases sent in as enteric fever, and which one would probably have diagnosed as that disease by a process of exclusion, were shown not to be such by means of Ehrlich's reaction. One, a woman aged 58, said to have had typhoid fever for six weeks. She was very ill and had continued fever, but no definite symptoms or signs. There was no diazo-reaction while she was in the hospital, and she died eleven days after admission. No intra-intestinal lesion was found, but old chronic peritonitis with firm adhesions, a small abscess in the splenic region, and numerous calcareous bodies in the peritoneum. The other, a boy aged 18, stated to have had typhoid fever for three weeks, and on admission had pyrexia and was violently delirious, but no definite signs were present in chest or abdomen. R. 44, P. 122. The temperature averaged 101·6° for four days after admission, then suddenly fell. All along no diazo-reaction could be obtained, and enteric fever was thereby excluded. After the sudden subsidence of the pyrexia he became rapidly convalescent, and five days later was taking solid food, and nine days after the crisis, was up and fairly recouped. All this points to acute pneumonia of the more central parts of a lung, and this was in fact diagnosed before the crisis solely by the pyrexia, the pulse and respiration relation, and the absent diazo-reaction.

One very marked reaction was obtained in a case of advanced

phthisis on one occasion, but after his general condition improved, the reaction became very faint. In no other case of tuberculosis was it found during this year, nor in malignant disease, jaundice, gastritis, mitral, aortic and renal disease, diphtheria, pleurisy, acute pneumonia, acute rheumatism, erysipelas, diabetes mellitus, anæmia, pernicious anæmia, scarlet fever, measles, delirium tremens, ascites, lead and arsenic poisoning, pericarditis, hysteria, oxalic acid poisoning. I have not found it in cases taking morphine, as Dr. Hewlett suggested might be the case.

I have received a communication from Surgeon-Captain Duncan, of Malta, in which he informs me of the wide prevalence of a specific fever clinically indistinguishable from enteric, but pathologically different, and generally called "Malta or Mediterranean Fever." He thinks the use of Ehrlich's diazo-reaction, as modified, would greatly help the diagnosis, and intends to use it as soon as he has procured the tabloid.

Considering the great obscurity and protean nature of the symptoms and signs of many individual cases of enteric fever, any additional sign cannot fail to be of value, even though it only possessed the vague and uncertain significance of the ordinary acknowledged signs. But I regard Ehrlich's diazo-reaction, thus modified, as of greater value and significance than a group of any two or three of the other symptoms or signs, and subsequent experience, with perhaps further modifications, may show that it is pathognomonic. I have been in the habit of not notifying the disease unless or until the reaction has declared itself, in the same way as I do not notify a case as diphtheria until Loeffleur's bacillus has been found in the throat, and this no doubt adds value to the notification despite the occasional delay thus caused.

I hope a sufficiently strong case has been made out for a return to the employment of this almost universally discarded reaction, thus modified, and have very little doubt that if generally used, would lead to very satisfactory results and perhaps to further modifications that would increase its utility and delicacy.

SHORT NOTES UPON THE MEDICAL OFFICER OF HEALTH IN RELATION TO PUBLIC ELEMENTARY SCHOOLS.

BY HERBERT MANLEY, M.A., M.B. CANTAB., MEDICAL OFFICER OF HEALTH, WEST BROMWICH.

THE duties of the Health Officer to the public elementary school and its governors are but meagrely set forth in statute, and the only references to them are two in number, which I shall commence by quoting.

1. Public Health Act, 1875, sec. 4. "House includes School."

2. Education Code, 1896, art. 88. The Managers must at once comply with any notice of the Sanitary Authority of the district in which the school is situated, or any two members thereof, acting on the advice of the Medical Officer of Health, requiring them for a specified time, with a view to preventing the spread of disease or any danger likely to arise to health from the condition of the school, or to exclude any scholars from attendance; but after complying, they may appeal to the Department if they consider the notice to be unreasonable.

The appointment of a Medical Officer to a School Board appears to be extremely rare, if it is not exclusively confined to the metropolis; and there is some doubt as to the power of School Boards to expend money upon a medical man's services. There are, however, as I hope to show, some need for those services, and school hygiene seems fairly to come within the scope of the preventive service. Indeed the time must shortly come when the anomaly of several independent authorities carrying out the details of public health will be removed. What can be more annoying to conscientious members of the sanitary service than to see their work made of no effect by the refusal of another body, with which they have no concern and over whom they can exercise no control, to carry out such an item of preventive medicine as vaccination?

No doubt the schools, like all other ratepayers, have a right to the services of the M.O.H.; but if they desire to utilise him for their own purposes with a view to Government grants and certificates and such duties as the periodical inspection of school children, they must be prepared to pay. This is a side of the question upon which we are sometimes accused of being too keen, and I feel that it is a delicate one; but until a State medical service of whole-time men is created, it is the duty of us all to do our best for the advancement of the office.

1 *Infectious Diseases.*—It is customary in most places for the Sanitary Authority to forward, free of cost, copies of notification certificates to the school authorities. In my opinion it is best to have these sent to the school attendance officer and not to the school teachers, as in this case there could be no confusion in the authorities. The School Board have always provided the necessary forms for this purpose. There are some infectious diseases which do not fall within the scope of the Notification Act, such as measles, whooping-cough, and chicken-pox. These produce quite as serious an effect upon the attendance as the others, and are more likely to escape the attention of the M.O.H. unless brought to his knowledge in some special manner. It has been suggested to me that it is my duty in such cases to proceed to the school affected and investigate the outbreak by making a detailed examination of all the children in attendance, but this seems to exceed the duties of a M.O.H.

2. *Sanitary Condition of Schools.*—There can be no doubt that the officer of the Sanitary Authority should include schools of all classes in his regular rounds, and that the condition of the buildings which are the property of the School Board should receive their share of attention. If, however, the Board demand any report from the M.O.H. with a view to the sanitary improvement of their schools, there can be no doubt that they ought to pay for it. In the case of a whole-time M.O.H, it is to be presumed that application for his services would be made to the committee under whom he acted. Even in such cases it is my opinion that the chief questions of cubic space, lighting, and

ventilation are the concern of the departmental inspectors, and not of the Local Authority.

3 *School Attendance.*—Since the abolition of payment by results the attendance has become a question of such importance that every child must be accounted for, *i.e.*, it must either attend ten times a week, be excluded on a proper certificate, or be removed from the school register as permanently unfit. In default of any of these courses the parents are to be prosecuted for not sending the child to school regularly. It is for the school medical officer, acting upon the request of the attendance officer, to decide to which class a case belongs. Broadly two classes present themselves, one in which the child may be a danger to others being infectious or affected with such things as scabies, lice in the head, porrigo, etc., and the other, where from constitutional reasons or other causes the child is itself unfit to bear the strain of regular school attendance, *e.g.*, those who have hereditary phthisis, congenital mitral disease, etc.

Such certificates involve a review in some cases of the diagnosis of other medical men, and the duty of giving them should, if possible, be entrusted to one who is as far as possible removed from competition in general practice. These difficulties are familiar to us all in connection with notification, and it is not for us to shirk the responsibility of our own honest opinions.

In my own case the School Board have appointed the Medical Officer of Health for the time being to act on their behalf. As I have already said, no payment is made for the reporting of notified cases, the forms being supplied by the School Board and the notice in all cases, whether Board or Voluntary Schools, being sent to the School Board attendance officer. All school inspections are to be made on the request of a school manager, and a complete examination of the children on the books for the day is expected with a report. For this they pay 10s. 6d. per visit, and it is impossible to examine a school at one visit.

For the certificates alluded to in heading 3, 2s. 6d. is paid in each case, all forms and stationery being provided by the School Board. It is but fair to say that the Board undertake to

pay for the examination of children from Voluntary Schools under heading 3, but not for the inspection of the whole school.

Much might be said of the value or otherwise of school closure; of its various forms, *i.e.*, closure by the M.O.H.; closure for the sake of the teachers' holiday, chiefly in the case of the girls' and infants' departments; closure to save the grant, but not accompanied by the closing of the Sunday School, where quite as much mischief is done, lest the children should be tempted to desert to the opposition school in the next street; and other matters more or less humourous, but time fails. My object in these few remarks has been to bring before you one of the duties which lie upon the fringe of the public health service, and which in the days to come, when the ideal of some of us is realised, will be included in State medicine; then the hygiene of our school-attending population, the lighting and ventilation of our public schools, the proper sanitation of their surroundings, and even some of the subjects which are included in the code, will be the concern of the local health officer.

REPORTS OF CASES.

A CASE OF DIPHTHERIA TREATED WITH ANTITOXIN SERUM.

BY T. SYDNEY SHORT, M.D.,
PHYSICIAN TO THE INFIRMARY, ASSISTANT PHYSICIAN TO THE GENERAL HOSPITAL, BIRMINGHAM.

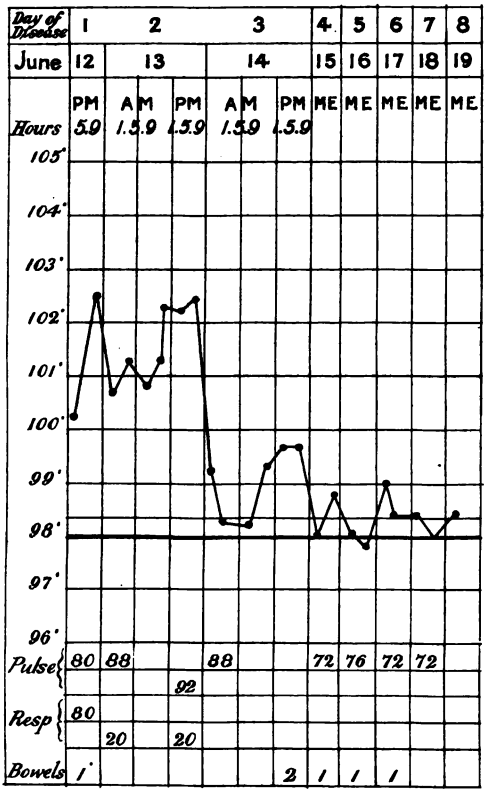
FROM the interesting analysis of the statistics of cases of diphtheria treated by means of antitoxin serum, which appeared in the July number of the *Review*, it seemed evident that the records of cases are often insufficient in detail and consequently of little value. In the following case, which I saw with

Mr. W. C. Howle, of Bevington Road, we were enabled to obtain full particulars, and for that reason I consider it worthy of record.

Mr. X., a medical practitioner, æt. 30 (weight 9 stone 5 lbs.), was asked to see a case of diphtheria on June 4th, 1896. The patient was brought to him again on June 11th at 11.30 a.m. The same evening at about 9.0 p.m. he himself felt a little pain in swallowing, as if from sore throat. On the next morning (the 12th) he looked at his throat in the glass and saw on the right tonsil a small white patch about a quarter of an inch in diameter. In the afternoon he felt poorly in himself for the first time, and consulted me at 4.0 p.m. He then had a slight headache, but very little general malaise. At the lower part of the right tonsil there was a grey parchment-like patch about half an inch across, with a brilliant scarlet margin, raised on the swollen and inflamed gland. The pharynx and soft palate were generally reddened; the left tonsil was not inflamed. There was slight enlargement with hardening of the glands just behind the angles of the lower jaw on each side. Temperature 100·2°, Pulse 80, of good quality. Urine, passed in my room, contained no albumen.

He was sent home to bed, and at 6.45 p.m. I injected, with the usual antiseptic precautions, 10 cc. of the Brit. Inst. of Preventive Medicine Serum beneath the skin of the back on the right side. During the night the back and the lumbar region ached and felt sore; and the headache becoming more severe he had very little sleep. The local soreness lasted about twenty-four hours and gradually left him. A little bit of the membrane placed between folds of dry lint and sealed in gutta percha tissue was sent to the Institute. The reply sent after examination was to the effect that the bacillus diphtheriæ was present.

The next morning (the 13th) the patch was much larger, being about two inches in length and one across, extending downwards. There was none seen on the soft palate. His appetite was bad, breath foul, and he was feeling very weak. At 11.15 a.m. I injected another 10 cc. of serum in a corres-


Day of Disease
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June
12
13
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16
17
18
19
PM
AM
PM
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5.9
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105°
104°
103°
102°
101°
100°
99°
98°
97°
96°
Pulse
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88
88
72
76
72
72
92
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80
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20
Bowels
1
2
1
1
1

ponding position of the left side. The back was tender to touch on the *right* side, but there was no swelling. The second injection was followed by much less aching than the first, and in the course of a second twenty-four hours nothing remained but the marks of the punctures. The temperature which had been 102·2° at 9.0 the preceding night fell to about 101° in the morning (see chart) and rose again to 102.2° at 9.0 p.m. Ten grains of antipyrin were ordered if the headache continued; from experience he had found satisfactory relief from this drug on previous occasions, without any untoward results. The headache was very severe again at night and the antipyrin was taken. He slept better and had a fairly good night. The next morning (the 14th), the fourth day of the disease, he felt better. The temperature was normal. The patch was beginning to separate and the edges were black and raised; the breath was still very foul. From the appearance of the tonsil I decided to wait twenty-four hours before injecting serum again.

On the morning of the 15th, the fifth day, the patch had gone, and must, I think, have been swallowed without the patient's knowledge. A flat red surface remained with a ragged sloughy excoriation at the upper part. A tube was inoculated from this and examined for me by Dr. Stanley, Pathologist to the General Hospital, but no diphtheritic bacilli were found in it. During the night he had an attack of faintness with weak and irregular pulse. During the next four days the tonsil gradually healed and he daily improved in strength; but on several occasions he was attacked with transient faintness requiring the free use of stimulants. The left tonsil now showed a little follicular secretion and a tube was inoculated from this. Dr. Stanley reported that the bacillus was present.

Three days after this the tonsils were quite healed, and he was sent to his home in the country. A few hours after he reached home a severe attack of urticaria broke out on the trunk and limbs, accompanied by rheumatic pains in the wrist and ankle. It reached its height in twenty-four hours and then gradually subsided; causing a considerable amount of annoyance

however for four days. It is interesting to note that he has a rheumatic history, and that his mother suffers occasionally from urticaria.

On the sixteenth day he went to a seaside health resort; and one month after the initial symptoms appeared he reported by letter that he was quite well.

Urine.—Free from albumen throughout. It was tested every day for the first week and at intervals afterwards. During the first five days it measured 30, 57, 45, 50, and 50 ounces.

Knee-jerks.—Present and fairly active throughout.

Paralysis.—No sign of any up to the end of the month, beyond the attacks of cardiac weakness.

Treatment—In addition to the two injections of 10 cc. of serum, during the first forty-eight hours a chlorine gargle was ordered hourly, alternately with one of magnesium sulphite. When the patch began to separate these were changed for gargles of bicarbonate of sodium (grs. 10 to oz.) and perchloride of mercury (1--2000) alternately every four hours. On the fifth day, owing to the attack of faintness during the night, strophanthus and nux vomica with iron were ordered, and continued till the twelfth day, when Easton's syrup was prescribed, with an alum and tannin gargle to continue during convalescence. For the rheumatic pains, on reaching home he took salicylate of soda in 15 gr. doses.

Stimulants.—Two ounces of brandy in egg flip were taken daily, with extra brandy when any faintness occurred or appeared imminent.

Remarks.—About five years ago this gentleman was thought to have a strain of the heart, brought about by overwork and general nutritional depression. A mitral murmur was heard, gradually passing away under iron and tonic treatment. The attacks of faintness that he experienced were probably explained by this previous cardiac weakness, because if due to specific paralysis of the heart muscle, some weakness of other muscles—*e.g.*, the palatal or the orbital—would probably have been present also. It seems likely that the urticaria was

rheumatic, and altogether unassociated with the serum injection. It came on at the same time as the joint pains, and was relieved by the salicylic treatment. On July 22nd I heard that he was still feeling quite well and weighed 9 st. 9 lb.

DENTIGEROUS CYST OF THE SUPERIOR MAXILLA.

UNDER THE CARE OF MR. ALBERT LUCAS, F.R.C.S.
ASSISTANT SURGEON TO THE BIRMINGHAM GENERAL HOSPITAL.

A YOUNG man, aged 21, was admitted to the General Hospital under my care on June 4th, during the absence of Mr. Barling, with a tumour of the upper jaw. He first noticed a small hard lump under his cheek, above the first molar tooth on the left side, about twelve months before admission. It gradually increased in size, but gave no pain except on severe exertion, when it throbbed.

On examination the left cheek appeared to be pushed forwards; at its anterior border it extended to the inner canthus of the eye. In the mouth was a swelling extending forwards along the whole of the alveolar process to the canine tooth; the swelling was soft and fluctuating posteriorly, but hard anteriorly where there was some egg-shell crackling. The orbital plate of the superior maxilla was not pushed up, there was no obstruction in the nose and no bulging to be felt in the pharynx.

I was somewhat doubtful as to its nature, but looking at the length of time it had existed I hoped it was cystic.

On June 8th chloroform was given, and I made an incision about an inch and a half in length through the mucous membrane between the cheek and the alveolar process; about three ounces of glairy, clear coloured fluid escaped, the fluid contained much cholesterin. At the posterior and upper part of the cyst cavity a tooth was embedded firmly in the bone, the crown of the tooth projecting into the cavity; this was removed and the wound packed with iodoform gauze. The cavity is now

(Aug. 28th) gradually decreasing in size, but there is still a very large space left. The presence of cholesterin in these cysts is not unusual, several being recorded by Mr. Heath in his work on "Diseases of the Jaws," the nature of its origin is not given, but probably is to be found in the fact that the tooth sac is formed by the involution of the epiblast. The tooth appeared to be a wisdom, which he had not cut on that side. As to whether the cavity was a distended antrum or not I am unable to say, it gave me the impression that it was.

PERISCOPE.

THE SOURCES OF THERAPEUTIC INDICATIONS.

ABSTRACT OF AN ARTICLE BY PROF. C. BOUCHARD.*

[These observations by the most philosophical of modern French physicians afford so much food for careful thought that I have prepared this abstract for our *Review*.—R. S.]

In therapeutics medicine becomes something more than a science, it acquires the interest of art and the nobility of philanthropic effort. Treatment was originally *palliative*, being directed to combat those disturbances of function which were regarded as the disease; we know now the proper value of such efforts although we cannot afford to despise them. Etiological treatment was not unknown, foreign bodies were extracted, parasites were killed or expelled and poisons evacuated, but these having been accomplished, nature was left to effect the cure. Pathogenic therapeusis, the treatment of the future, depends upon our knowledge of the manner in which the morbific agent works and the organism reacts against it; we must be able to distinguish which among these acts are protective and aid recovery. Artificial recovery is obtained when we can at once and completely remove the cause of the

* The *Medical Week*, vol. iv., 1896, p. 133.

disease; but even when we appear to do this as by expelling the worms which in a child cause epileptiform attacks, there is something left, a predisposition which existed before and has been aggravated by the accident. When we cure anthrax by injecting iodine in and around the pustule we probably destroy many of the microbes and perhaps render the toxins of others less injurious, but recovery depends upon the power of the organism to combat the remaining bacteria and toxins, so that it is after all upon the *vis medicatrix naturæ* that we rely.

Pathological anatomy by its revelations imbued physicians with the notion that disease consisted in organic changes beyond the reach of medicine, and for a generation interest in treatment died out; yet the patients recovered. But pathological physiology having drawn attention to the functional disturbances associated with organic changes, a school arose which created a pathology founded on vaso-motor action, congestions, thrombosis, exudations and thermotaxis, and in harmony with it we have had a restless and noisy physiological therapeusis which pretended to do in a few weeks what the careful empiricism of the old school had only accomplished for the older remedies in the course of centuries. This period, in which trade interests are too closely bound up with science, is not yet at an end.

But for the last twenty years medicine has been striving to obtain pathogenic data, to find out how the morbific cause affects the organism, how the latter reacts to it, and how the disease progresses towards death or recovery: when spontaneous recovery will necessarily ensue, as in wounds, etc., we have only to place the affected parts in the most favourable conditions.

In intoxications we must expel or neutralise the poison, and aid nutrition. But in diseases due to nervous reaction, all those in short which are attributed to taking cold, we see that nervous disturbance causes certain organs and tissues to relax their vigilance in protecting the organism from the invasion of parasites, particularly in the pharynx and intestine, and infection

is established. This is the case with tonsillitis, bronchitis, pneumonia, pleurisy, diarrhœa, etc. Treatment must be directed to act on the same nerve centres, hence the value of so-called revulsives, acting through the skin. In infective diseases the tissues and fluids of the body, influenced by the microbial products, become modified chemically and perhaps physically; sometimes they acquire the power of killing or at least weakening the microbes and antagonising the influence of their toxins. We are now using the fluids of animals which have recovered from diseases and have thereby acquired this property; in future it may be that we shall be able to extract substances from these fluids which will contain the protective power in a condensed form. During the period of increase we should aid the elimination of the poison, to which febrile oliguria for example is a most serious obstacle.

In the large group of diseases dependent upon disturbed nutrition we must have recourse to hygienic measures, diet, exercise, air, light broths and other stimulants which through the skin exert an influence on the nervous system, which in turn modifies nutrition. It is in these more than in any other class that pathogenic treatment is applicable, because they do not recover spontaneously, and by it alone can they be cured.

SURGERY.

BY ALBERT LUCAS, F.R.C.S.
ASSISTANT SURGEON, GENERAL HOSPITAL, BIRMINGHAM.

Prostatic Hypertrophy.—As of late years this subject has been much before the minds of surgeons we were pleased to see that it was selected for discussion at the meeting of the British Medical Association at Carlisle. There are now about half-a-dozen methods of treatment open to us and more are cropping up every day.

Simultaneous ligation of both internal iliac arteries (Bier's operation) is described by Willy Meyer, of New York, in the

Annals of Surgery; he there quotes three cases in which he had performed the operation, but with results which he admits as being far from brilliant. He advises the operation to be performed extra-peritoneally. He believes that the operation is indicated in all cases of hypertrophy of the prostate where absolute retention is of recent date and marked dilatation with atony of the bladder has not set in, and where we seem to be justified in striving for a radical cure. He concludes his article by stating that "If a patient with hypertrophy of the prostate is satisfied to have his testicles removed, or if not that, to wear the catheter in a suprapubic, though water-tight fistula for the remainder of his days, I should of course not persuade him to have Bier's operation done on him."

It appears to us that ligation of both internal iliac arteries is a procedure involving risks greater than the condition warrants, particularly as there are other operations which can be done with but little danger to the life of the patient, viz., orchidectomy, double or single, and vasectomy.

Lewis Stephen Pilcher in the same volume relates six cases of orchidectomy, in all of which great improvement followed in the urinary symptoms, and in most of them also marked betterment of their general health.

At Carlisle the general opinion seemed to be that castration, either single or double, was followed by great improvement of the urinary symptoms, but occasionally was followed by mental derangement. Dr. McEwan stated that he had found that in 26 out of 37 cases vasectomy had been successful. Probably in vasectomy the improvement is due to division of the nerves in the cord going down to the testis; therefore it would be well before resorting to orchidectomy or other severe procedures to make a small incision over the cord, isolate the spermatic veins, and then divide the vas and the tissues in its near neighbourhood between two ligatures.

Prof. Chiene strongly advocated prostatectomy, but the results which have followed that operation, except in certain selected cases, have not been over satisfactory.

Hydro-galvanism of the urethra is strongly recommended in an article by Dr. Robert Newman, of New York, in the Transactions of the Electro-Therapeutic Association. The instrument by which it is applied is so arranged as to apply galvanism to parts of the genito-urinary tract without bringing the instrument in actual contact with the parts to be benefited thereby. The principle is that of an electric bath; the electrified water gravitates in the cavities, which are thereby expanded, so that the whole surface of the cavities is more completely electrified than it could be with, and without possibility of the irritation which might arise from, the use of the metal electrode. "The instrument is a conical tube of hard rubber, which can be inserted into the urethra from one to two inches; a soft rubber ring pushed against the meatus prevents leakage. A stop-cock regulates the supply of the fluid, the top of which is used as one binding post to attach the tip of one rheophore. The other end of the tube is used for the attachment of the rubber tube for the introduction of the fluid. The tube is lined with a platinum wire for the conduction of the electricity." The fluid to be used may be simple salt water, bicarbonate of soda, or any other medication, as the symptoms may indicate. In his article he states that for twenty-nine years he has treated urethral strictures by electrolysis, and that in 1893 he reported 1,755 successful cases by different operators. Hydro-galvanism may be used in tortuous strictures of small calibre in order to dilate, to lessen the tortuosity, allay the irritability, and heal up any sore or bleeding point. Diseases of the seminal vesicles, mostly inflammations, can be treated with marked benefit by this method. He also states that he has cured hypertrophies of the prostate with his galvano-cautery sound. In chronic urethritis he claims the best results. We fear that in other people's hands, results will hardly be obtained in confirmation of his statements, as has been the case so many times before when electrical methods have been extolled.

In the Transactions of the Section on General Surgery of the College of Physicians of Philadelphia, Dr. William White

discusses the question as to whether the appendix should be removed in every case of appendicular abscess. We are pleased to see that he and all the other American surgeons are reported as having spoken strongly in favour of doing as little as possible after opening the abscess, believing that searching about with the finger is fraught with great danger to the patient.

In recurrent cases, he advises removal of the appendix after two well-defined attacks; the mortality when performed by competent operators in these cases is extremely small.

Varicose Veins.—The operative treatment of this condition is not over satisfactory; relapses are very common, particularly so after multiple ligature. Excision leaves a large scar. An old method, which we have recently tried, has in one or two cases pleased us very much; it is a combination of ligature and forcible drawing out. After the vein has been tied at its upper end, it is quite easy to pull out some three or four inches from an incision lower down the leg. The tributary veins being torn through do not bleed. The leg should be kept elevated for a few days after operation, and the tiny wounds will be found soundly healed in four or five days.

Serumtherapy.—The treatment of the various forms of cancer by antitoxin serums has been much discussed during the last few months, notably by Prof. Le Dentu in the *Gazette des Hôpitaux.* There seems to be no doubt that carcinomatous and sarcomatous tumours have been much improved and even cured by the supervention of an attack of erysipelas, as they have been also by some of the other acute specific fevers. At first, as is usual in trying some new remedy, several deaths occurred either from using too strong a culture or from an overdose. The best results seem to have followed the use of the sterilised toxin of the streptococcus. Mr. Haslam has recorded a case of advanced carcinoma of the breast in an old woman which was much benefited if not cured by repeated injections of erysipelas antitoxin. A case of inoperable sarcoma has also recently come under our notice in which improvement followed whilst under

the same treatment, but which relapsed when the injections were discontinued.

The case recently recorded by Ballance and Bokenham, in the *British Medical Journal*, of cure of acute *post mortem* septicæmia, by injections of streptococcus antitoxin, was very interesting and instructive; but we must reluctantly confess that it did not carry complete satisfaction to our minds, and that there was a feeling that we should like to have records of several more successful cases before we could recommend the method as a sure and certain cure.

In tetanus results have been obtained which appear far more satisfactory, several cases having recovered after the use of tetanus antitoxin. Trevelyan (*Brit. Med. Journ.* Feb. 8th, 1896), however, records three cases in which not the slightest good was done. Two cases have also come under our own notice which were not benefited by it—one, a young man with very slight spasms who eventually recovered, and would in all probability have done so had he not been injected; the other was a very acute case, which was not in the least degree benefited by several injections, and died within two days of the onset of the disease.

Displacements and injuries of muscles and tendons have recently been well treated of in a clinical lecture by Mr. Howard Marsh. He states that displacement of the tendon of the peroneus longus takes place when the foot is everted and not when it is inverted, as usually described. He explains the fact of the extensor longus digitorum (pedis) never becoming displaced by the arrangement of the loop of the annular ligament, the breaking strain of which has been made out to be about 112 lbs. Displacement of the long tendon of the biceps cubiti takes place when the head of the humerus is strongly rotated outwards, as in the act of wringing clothes. There also the arm would be flexed at the elbow joint, a condition which he does not mention, but which appears essential for the production of this deformity. Movements of the fingers in extension and flexion in many people cause one of the tendons of the extensor

communis digitorum to slip over the knuckles, but do not give rise to any impairment of the use of the fingers. A case has recently come under our notice of slipping of the tendon of the extensor carpi ulnaris over the styloid process of the ulna. He advises, after reduction of the peroneus longus, that the foot should be placed at right angles with the leg, and somewhat inverted, and then placed in a leather or plaster of paris case for a month. In old-standing cases, after suturing has failed, he thinks the better treatment to adopt, when it is a source of pain and interferes with the use of the limb, would be to cut down and resect so much of the tendon as would ensure the permanent separation of the ends.

A number of cases of rupture of various tendons and muscles are recorded. In the case of the tendo achillis good results usually follow approximation of the ends by keeping the foot extended. Cutting down and suturing is not often required, but may be where there is much effusion of blood and separation of the ends of the tendon or muscle.

REVIEWS.

ASEPTIC SURGERY.*

We are very pleased to see that Mr. Lockwood has published these notes on aseptic surgery, which were written for the St. Bartholomew's Hospital Journal. Mr. Lockwood, it is almost needless to remind our readers, has been working at this subject for a good number of years. In this small book is a brief *résumé* of his work, and we cordially recommend it to the careful reading of every practitioner and student of surgery. It is arranged under four headings—first, the principles upon

*Aseptic Surgery. By Charles Barrett Lockwood F.R.C.S., Hunterian Professor, Royal College of Surgeons of England; Assistant Surgeon to St. Bartholomew's Hospital; Surgeon to the Great Northern Hospital. Edinburgh and London: Young J. Pentland.

which aseptic surgery is founded, including a short account of the commoner bacteria; second, the distribution of bacteria, with special reference to surgery; third, the means at our disposal for destroying bacteria and preventing their growth; and fourth, a brief account of the way in which we may apply the foregoing to surgical practice and some of the results.

He gives as the best and most convenient stain for all ordinary purposes Ziehl's solution of carbol-fuchsin. Air infection of wounds is stated to be rare, and is diminished by rapidity in operating. We do not agree with Mr. Lockwood in advising the irrigation of clean wounds with a stream of antiseptic lotion, believing that the application of a strong chemical irritant does more harm than good. Ordinary tap water contains many saprophytic bacteria which can only live upon dead tissues and but few pathogenic organisms; it can therefore be used to wounds without of necessity causing suppuration. The author prefers biniodide of mercury to other antiseptics for rinsing out the sponges, for the occasional flushing of the wound, and for the continuous bathing of the hands of the operator and of his assistant. He states that 1 in 1000 biniodide does not cause that pickled appearance in a wound which carbolic acid and sublimate impart; the mixture does not become opaque with coagulated albumin, but remains clear and translucent, except when the blood is in excess and there is no precipitate. Kanthack admits that biniodide is the most efficient disinfectant he has tried. This is denied by other experimentors on the ground of the difficulty in neutralisation. In order to disinfect the hands Mr. Lockwood uses a one in five hundred solution of biniodide of mercury in 75 per cent. rectified spirit, to which a little water and iodide of potassium are added to dissolve the biniodide. The skin of the surgeon, his assistants, and the patient remained sterile after scrubbing and soaking in the solution. Silkworm gut is not injured by one or two boilings. We agree with the author in insisting on the fact that swiftness in operating is of great importance, not only that it diminishes shock but also lessens

the danger of infection from the air and other sources. In conclusion we think that this book is the simplest and best of its kind which has yet been written by any English author, and one which every student ought to read. We have tested many of his methods, and so far have not found them to fail us.

TRAUMATIC INFECTION.*

THIS book is a reprint of three lectures which have already appeared in the *Lancet*, and which were given during February and March, 1895, at the Royal College of Surgeons. They will be found useful to other workers in this important subject as a clear and concise record of Mr. Lockwood's work. Cases of traumatic infection of which the clinical history and morbid anatomy were known were chosen, and their bacteriology carefully worked out. Attention is called to the danger of mistaking cadaveric bacteria which have grown in the tissues after death for those which may have existed during life.

In the first lecture several cases of septic peritonitis are recorded in which the method of infection is carefully worked out, and which were not regarded as septic until they were bacteriologically investigated.

The second lecture deals with the septicæmias with special reference to bacterial invasion of the heart, pericardium, and pleura.

The third lecture is devoted to certain cases of traumatic infection which do not clearly fall under the preceding headings. A case is quoted in which bacteriological examination proved that organs which had been described as perfectly normal by a competent pathologist were infected by streptococci, and that the patient died of pyæmia. A case of angina ludovici is described in which the fatal result is attributed to the bacillus septicus.

* Traumatic Infection. By Charles Barrett Lockwood, F.R.C.S.; Hunterian Professor, Royal College of Surgeons of England; Assistant Surgeon to St. Bartholomew's Hospital; Surgeon to the Great Northern Central Hospital.

We have quoted a few of the cases to which reference is made, in order to show the nature of Mr. Lockwood's work, after which it does not need anything further to recommend it to the careful reading and study of all who are engaged in this most important branch of original work.

ELEMENTARY ANATOMY AND SURGERY FOR NURSES.*

THIS book is the substance of a course of lectures on elementary anatomy and surgery delivered by the author to the nurses at the West London Hospital. In it there is no attempt to describe the actual nursing of surgical patients; it would we think have been better to have contained an account of the latter, and so to have in one book all, or at any rate something, about anatomy and surgical nursing, as these subjects are in most hospitals treated of in the same course of lectures and by the same lecturer. We agree with the author that the text-books on surgical nursing do not meet the requirements of a nurse as they should.

The chapter on inflammation and healing of wounds is too elementary, including, as it does, the preparation of the patient and his skin, as well as the various antiseptic dressings and the instruments to be used. Fractures, injuries, and diseases of joints are very well and concisely described. In describing tracheotomy the author has wandered into the outlines of nursing, but not nearly sufficiently; for no cases require more careful nursing than after tracheotomy has been performed.

We do not think it is much good giving a description and pictures of a few instruments, for they can always be obtained and demonstrated upon in a manner which cannot be learnt

* Elementary Anatomy and Surgery for Nurses. By W. McAdam Eccles, M.S. Lond., F.R.C.S. Eng.; Assistant Surgeon to the West London Hospital; Assistant Surgeon to the City of London Truss Society; Surgeon to the St. Marylebone General Dispensary, etc. London W.C.: The Scientific Press Limited, 428, Strand.

from books. On the whole this book has much to recommend it. The errors, if any, are those of omission rather than commission; we may safely say that it contains much that is useful and little that is needless.

RHEUMATISM, ITS NATURE, PATHOLOGY, AND TREATMENT.*

THE profession owes so much to Dr. Maclagan for the part he took in establishing the value of salicin and the salicylates in the treatment of acute rheumatism, that anything he writes on the subject will be read with interest and command respect. The volume before us is a second edition of his book originally published in 1881. Dr. Maclagan discusses with a considerable amount of skill the ætiology of rheumatism, and discarding the lactic acid and neurotic theories contents himself with the hypothesis that rheumatism is malarial in nature, its poison being a miasm which enters from without. He thinks that salicin kills the miasm of rheumatic fever, just as (he says) quinine kills the miasm of intermittent fever. Any treatise on this subject written at the present time must be considered incomplete which does not even refer to the uric acid theory of rheumatism.

The chapter on myocarditis is good. If the author succeeds in weaning a few physicians from their abject worship of murmurs and causes their attention to be directed more towards the condition of the myocardium, the book before us will not have been written in vain.

It is gratifying to learn that Dr. Maclagan does not place much faith in the embolic theory of chorea. His views on the relation between rheumatism and chorea are wide, and it must be admitted that here and there they become a little loose. "The ultimate pathological explanation of the relation of the rheumatism and the chorea is the same in each: the one disease

* Rheumatism, its Nature, Pathology, and Treatment By T. J. Maclagan, M.D. Second edition. London: Adam and Charles Black. 1896.

consists in disturbance of the peripheral portion of the motor apparatus of the body; the other consists in disturbance of the motor centres." A considerable number of the explanations offered in the book are no nearer being ultimate than the one we have just quoted.

CLINICAL DIAGNOSIS.*

THIS is a useful little book, the plan of which is practically that of Von Jaksch's Clinical Medicine on a small and compressed scale. There is no attempt at any discussion of the various methods described, the whole being arranged in the form of a series of directions for carrying out the several tests. This has been very well done, and there seem to be but few methods of clinical and microscopical examination which do not find a place in some part of the book. Occasionally, it is true, some investigation is a little inadequately or incorrectly given; for example, it is stated that when peptones are present in the urine in considerable quantity they give the biuret reaction with caustic potash and sulphate of copper, "other proteids" giving "a violet colour when treated thus." The latter statement is of course only partially correct, for it is impossible to distinguish peptones from the albumoses (or, probably more correctly, propeptone) by this test. Were it true, peptonuria would be very much more common than it is, for we can state from experience that the biuret reaction is very frequently present in the urine of patients attending hospital out-patient departments, and that in every case which we have at present investigated this reaction has entirely disappeared after precipitation by saturation with ammonium sulphate. We may further note that the more elaborate methods for the detection of peptones in urine are not given at all, but we must also add that the various methods for distinguishing between the different varieties of albumose are

*Clinical Diagnosis, a Practical Handbook of Chemical and Microscopical Methods. By W. G. Aitchison Robertson, M.D., D.Sc., F.R.C.P.E., F.R,S.E. London: The Scientific Press Limited. 1896.

fully given in the succeeding sections. Such slips, however, are very few, and we can thoroughly recommend the book as a very useful, reliable, and easily-consulted guide in the thorough investigation of medical cases from the clinical and microscopical point of view.

OEYNHAUSEN AND ITS INDICATIONS.*

OEYNHAUSEN, or Oeynhausen-Rehme, possesses three warm and two cold springs, the main solid constituent of the waters being sodium chloride. For many years the baths have enjoyed a wide reputation in Germany for their efficacy in cases of scrofula, rheumatism and gout, and general anæmia; and in the present pamphlet their usefulness in chronic cardiac and in chronic nervous diseases is pointed out.

The booklet is written in a fair spirit, and gives a complete list of the ailments which may be relieved by the bath treatment. Under each heading are mentioned some conditions which contra-indicate the use of these baths, and others in which their employment has failed to do good, *e.g.*, in disseminated sclerosis, syringomyelia, and tumours of the spinal cord. Speaking generally regarding disease of the nervous system, the inference one draws from the pamphlet is that those patients whose diseases have a natural tendency to improve find favourable conditions in Oeynhausen. The authors should, however, have had more care than to write in one part—when speaking of the valuable effects of the waters on heart disease—that the blood-pressure rises and the pulse becomes slower and fuller under the influence of the baths, and in another—when treating of the effects on cerebral hæmorrhage—that increase of blood-pressure is *not* produced by the baths.

* Oeynhausen and its Indications. Edited by the Physicians of the Baths.

PHYSICS FOR STUDENTS OF MEDICINE.*

TEACHERS of medicine know only too well that as a general rule students have only the most meagre knowledge of physics. Even the simplest forms of mechanical appliances, such as levers, have to be explained to them; and unless a special course of study in science has been pursued, it is unusual to meet with a student who knows to what the term. parallelogram of forces even refers.

Since 1892, when the General Medical Council ordained that physics should form a part of the extended course of professional study, efforts have been made to remedy this defect; and as an assistance thereto this text-book will prove useful. The only fault we have to find with it, if it be a fault, is that it is too full. The book is not a large one, and the information it contains is enormous. So much has been compressed within its four hundred and sixty odd pages of closely-printed matter, that the reading of a page or two quickly produces a feeling of repletion. As we think it will be used chiefly as a work of reference, the absence of an index is to be deplored.

NOTES ON SURGERY FOR NURSES.†

THIS book of 175 pages is written in Dr. Bell's well-known and most forcible style; for it we have nothing but praise. It embraces the main points of the lectures which Dr. Bell delivered to the nursing staff at the Edinburgh Royal Infirmary for twelve years. This edition also contains an additional chapter on General Advice to Nurses, which adds much to its value. The first chapter on the symptoms, pathology and

* Physics for Students of Medicine. By Alfred Daniell, M.A., Sc.B., D.Sc., F.R S.E. London: Macmillan and Co.

† Notes on Surgery for Nurses. By Jos. Bell, M.D., F.R.C.S., Edin.; Consulting Surgeon to the Royal Infirmary; and Surgeon to the Royal Edinburgh Hospital for Sick Children. Fourth Edition. Oliver and Boyd.

treatment of inflammation is very clear and simple, so simple indeed that it can be understood by the youngest probationer, as is also a most useful chapter on the healing of wounds. Just enough and not too much is contained in the description and treatment of fractures. Perhaps the author goes beyond the nurse somewhat in lecturing on tumours. Every nurse ought to read the author's "General Advice," for it is most excellent. He ends with—"Cultivate absolute accuracy in observation and truthfulness in report. As John Goodsir used to say, 'Let us have God's truth in everything.' It is not so easy to be accurate as you think, but it is at times of great importance."

SOUTHALL'S MATERIA MEDICA.*

THE handy character of this well-known volume has been preserved in the new edition, with an additional improvement in the insertion of brief sentences as to the uses to which each drug described is applied. The book is arranged on a sensible plan: the different seeds, roots, leaves, etc., are grouped together, and a paragraph heads each group explaining precisely what part of the plant or organism is included in the division. A botanical classification in the natural-order system is given separately at the beginning of the book.

To students this materia medica will be especially useful, as there are many tables introduced furnishing just the information he may require for examination purposes—*e.g.*, the tabulated characters of the four cinchona barks, on pp. 146, 147, and the table of opium bases on p. 187; while to practitioners it offers a concise and clearly-printed volume for reference.

* Southall's Materia Medica. By John Barclay, B.Sc. Lond. Fifth edition. London: J. and A. Churchill. 1896.

AIDS TO MEDICINE.*

THIS book is perhaps one of the best of the series of "Aids" of which it forms a part; but the "aid" given is so obviously aid in cramming for examinations with the least possible employment of the intellect, that we cannot consider that the praise implied in the admission is of a very high order. Indeed, we cannot help feeling some regret that Dr. Dalton has added one more to the already long list of books of this type. We must, however, admit that there is more in this book than in many of its fellows of the same series, and that its author has done the best within the limits assigned to him. It is well up to date; but necessarily the treatment of the various subjects is altogether inadequate.

WE have also received a small book on "Our Growing Children," written in a popular style by Gerard Smith, M.R.C.S. It is evidently addressed to parents and guardians, but medical men ignorant of orthopædy may find here and there a hint worth remembering.

PUBLISHERS' DEPARTMENT.

New Inventions, Drugs, etc.

MESSRS. BURROUGHS, WELLCOME & Co. had an interesting exhibition of their preparations at the last meeting of the British Medical Association. Their exhibits included anti-toxic serums and many other preparations, and in each case the steps necessary to produce the article in question were shown as fully as was possible under the circumstances.

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* Aids to Medicine. By Norman Dalton, M.D. Lond., F.R.C.P.; Physician to King's College Hospital and Professor of Pathology in King's College, London. London: Baillière, Tindall, and Cox.

New Books, etc., Received.

Rheumatoid Arthritis; its Pathology, Morbid Anatomy, and Treatment. By GILBERT A. BANNATYNE, M.D. Glas., M.R.C.P. Ed., Honorary Physician to the Royal United Hospital and to the Royal Mineral Waters Hospital, Bath. Bristol: John Wright and Co. 1896.

Prize Essays on Leprosy. Newman, Ehlers, Impey. London: The New Sydenham Society. 1895.

Scheme for the Examination of Ophthalmic Cases. By PRIESTLEY SMITH, M.R.C.S., Ophthalmic Surgeon to the Queen's Hospital, Birmingham. Birmingham: Cornish Brothers.

Food in Health and Disease. By J. BURNEY YEO, M.D., F.R.C.P., Examiner in Medicine at the Royal College of Physicians, Professor of Clinical Therapeutics in King's College, London, and Physician to King's College Hospital. New and revised edition. London: Cassell and Co. Lim. 1896.

Our Baby; for Mothers and Nurses. By Mrs. LANGTON HEWER, Diplomée, Obstetrical Society. Fourth edition, revised. Bristol: John Wright and Co. 1896.

Abdominal Surgery. By J. GREIG SMITH, M.A., F.R.S.E., Surgeon to the Bristol Royal Infirmary, Professor of Surgery, University College, Bristol. Fifth edition; two volumes. London: J. and A. Churchill. 1896.

Surgical Emergencies, together with the Emergencies attendant on Parturition, and the Treatment of Poisoning. By PAUL SWAIN, F.R.C.S., Surgeon to the Devon and East Cornwall Hospital. Fifth edition. London: J. and A. Churchill. 1896.

The Objects and Limits of Operations for Cancer, with Special Reference to Cancer of the Breast, Mouth and Throat, and Intestinal Tract; being the Lettsomian Lectures for 1896. By W. WATSON CHEYNE, M.B., F.R.S., F.R.C.S., Professor of Surgery at King's College, London, Surgeon to King's College Hospital. London: Baillière, Tindall, and Cox. 1896.

Aids to Obstetrics. By SAMUEL HALL, B.A., M.B, D.P.H. Cantab., M.R.C.S. Eng., late Casualty Physician, Assistant Demonstrator of Physiology, and Resident Obstetric Assistant, St. Bartholomew's Hospital. Fifth edition. London: Baillière, Tindall, and Cox.

Sixty-first Annual Report of the British Medical Benevolent Fund for the year 1895.

The Causes and Treatment of Rheumatoid Arthritis. By SAMUEL HYDE, M.D., Vice-President and Chairman of Council, British Balneological and Climatological Society, etc. London: John Bale and Sons. 1896.

Deformities; a Treatise on Orthopædic Surgery. Intended for Practitioners and Advanced Students. By A. H. TUBBY, M.S. Lond., F.R.C.S. Eng., Assistant Surgeon to and in charge of the Orthopædic Department, Westminster Hospital, Surgeon to the National Orthopædic Hospital, etc. London: Macmillan and Co Lim. 1896.

The Amateur Photographer. August 7th, 1896.

Anales del Departmento Nacional de Higiene: dirigidos por la Oficina Sanitaria Argentina. Buenos Aires, Junio 24, Julio 1° de 1896.

The Anomalies and Evils of the Medical Administration of India. By K. N. BAHADURJI, M.D. Lond., President Grant College Medical Society and Bombay Medical Union. London: A. Bonner. 1896.

A Manual of Infectious Diseases. By E. W. GOODALL, M.D. Lond., Medical Superintendent of the Eastern Hospital of the Metropolitan Asylums Board; and J. W. WASHBOURN, M.D. Lond., F.R.C.P., Physician to the London Fever Hospital, Assistant Physician to Guy's Hospital. London: H. K. Lewis. 1896.

Disease and Defective House Sanitation, being Two Lectures delivered before the Harveian Society of London. By W. H. CORFIELD, M.A., M.D. Oxon., F.R.C.P., Hon. A.R.I.B.A., Professor of Hygiene and Public Health at University College, London. London: H. K. Lewis. 1896.

Notes on the more Common Diseases of the Eye. By ROBERT W. DOYNE, F.R.C.S., Surgeon to the Oxford Eye Hospital, etc. London: H. K. Lewis. 1896.

Valedictory Address to the Graduating Class of the Medico-chirurgical College of Philadelphia – Intra-ocular Growths; Operations Performed in the Eye Department of the Medico-chirurgical College. By T. WEBSTER FOX, M.D., Professor of Ophthalmology in the Medico-chirurgical College, Philadelphia.

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THE

BIRMINGHAM MEDICAL REVIEW.

OCTOBER, 1896.

ORIGINAL COMMUNICATIONS.

ON THE CIRRHOTIC LIVER.

BY H. D. ROLLESTON, M.A., M.D. CANTAB., F.R.C.P.
ASSISTANT PHYSICIAN AND LECTURER ON PATHOLOGY AT ST. GEORGE'S HOSPITAL, LONDON;
AND W. J. FENTON, M.B., B.C. CANTAB.

FROM the *post mortem* records of St. George's Hospital for the last ten years we have abstracted 114 cases in which hepatic cirrhosis was present. Any cases about which there was any doubt—such as cases of the biliary cirrhosis which sometimes supervenes after obstruction of the common bile duct, and cases of cirrhosis in the young—have been omitted. The paper consists largely of considerations based on the statistics of these cases, and may conveniently be divided into remarks bearing—

1. On all the 114 cases.
2. On 47 cases in which death was directly due to the cirrhosis.
3. On 67 cases fatal from diseases other than cirrhosis.
4. Conclusions and list of cases.

In the first instance we were led to this study by reading the interesting paper by Dr. Foxwell on "The Enlarged Cirrhotic Liver" in the March and April numbers of this *Review*,* and have therefore ventured to offer this communication to the editors.

* Also 'The Enlarged Cirrhotic Liver." Cornish Brothers, Birmingham, 1896.

I.—REMARKS BEARING ON THE 114 CASES AS A WHOLE.

Causes of Death.—Of the 114 cases 47 were fatal from the effects of cirrhosis, while in the remaining 67 death was due to some other cause. It is remarkable that of these 67 cases 17, or 25 per cent. died from tuberculosis. If it be taken that one-seventh of all deaths are due to tuberculosis, the mortality in these 65 cases is seen to be doubled.

The high ratio of tuberculous disease is probably due to the fostering influence of alcohol,* which has long been recognised. It is necessary to qualify the statement with reference to these particular statistics, for of the 67 cases a definite history of alcoholism is only forthcoming in 26; but the notes are by no means always conclusive, and further, in 10 out of the remaining 41 the question is not alluded to at all.

In only three cases was death due to peripheral neuritis of alcoholic origin. Since the two diseases are so frequently due to the same underlying cause, *i.e.*, alcohol, it might *a priori* have been expected that they would frequently coincide. This, however, appears not to be so. Dr. Kerr† mentions that in 14 fatal cases of alcoholic neuritis the liver only showed macroscopic evidence of cirrhosis in 3, or 21 per cent. Tuberculosis and peripheral neuritis have a special relation to cirrhosis of the liver, inasmuch as they have a common cause. In the other 47 of the 67 cases in which cirrhosis, though not responsible for death, was found *post mortem*, there is no such relationship between cirrhosis and the manner of death These independent causes were surgical accident, pneumonia, granular kidney, malignant disease, cardiac failure, and miscellaneous diseases. Cardiac failure may, as Dr. Graham Steele‡ has pointed out, be due directly to alcohol; and three of our cases may well have been examples of the alcoholic heart which he has so well described.

* Dickinson. *Medico-chirurgical Trans.*, vol. lvi.; also Pitt. *Path. Trans.*, vol. xl., p. 347.

† *Medical Chronicle*, new series, vol. iv., p. 315. January, 1896.

‡ *Medical Chronicle*, vol. xviii., p. 1.

Sex.—The 114 cases were composed of 82 males and 32 females, all adults. In order to keep the results more uniform, a few cases of cirrhosis of the ordinary type occurring in children have been omitted.

Taking all the cirrhosis cases the relation of males to females is 5 to 2. While in the cases fatal from cirrhosis there were 29 males to 18 females, a ratio of 3 to 2; and in the 65 cases fatal from disease other than cirrhosis there were 53 males and 14 females, or nearly 4 to 1.

While therefore cirrhosis is commoner in males it is also more often latent; or in other words, when it does occur in women cirrhosis more often gives rise to symptoms.

Ages.—The average age for all cases of cirrhosis works out at 48·1 years. The average age for males is 48·88 years, and for females 46·2 years.

The average age of the cases fatal from cirrhosis was 48·9 years; the males being 50·3, and the females 46·66 years.

The average age of the cases fatal from diseases other than cirrhosis was 47·6 years; that of the males being 48 years and of the females 45·6 years.

Thus there is but little difference between the ages of patients dying from cirrhosis and those dying from other diseases but with cirrhosed livers in addition. What difference there is (1 year and 4 months) is in favour of patients dying from cirrhosis.

This statistical result is opposed to the experience of Guy's Hospital as expressed by the late Dr. Hilton Fagge,* to the effect that the average age of persons in whose bodies cirrhosis of the liver was discovered without there having been marked symptoms during life was five years higher than that of persons dying of the disease.

The average age of all the alcoholic cases of cirrhosis was 46·6 years, while the average age of the non-alcoholic livers was

* *Guy's Hospital Reports*, Series iii., vol. xx., p. 193; and *Principles and Practice of Medicine*, vol. ii., p. 289. 1886.

49·9 years, and of the 13 cases in which there was no history to show whether the case was alcoholic or not, 51·6 years.

Taking the sexes separately—

alcoholic male livers, the average age = 47·8 years.
non-alcoholic „ „ „ = 49·3 „
alcoholic female „ „ „ = 42·8 „
non-alcoholic „ „ „ = 51·5 „

The alcoholic cirrhotic patient's life is therefore on the average shorter than the non-alcoholic cirrhotic patient's, notably so in the case of women.

Weight.— The average weight of all the livers was 65·49 oz.; for males 67 oz., which is 14 oz. in excess of Reid's average (53 oz.) for the normal organ, and for females 58·58 oz., 13 oz. in excess of (45 oz.) the normal weight.

The average weight of the liver in cases fatal from cirrhosis was 63·17 oz., and of the cases that died from other causes 67·19 oz. This bears out the thesis that the cirrhotic liver is heavier than natural.

As to the question whether the alcoholic cirrhotic liver is heavier than the non-alcoholic cirrhotic liver our figures show that the average weight of all the alcoholic livers was 65·59 oz., while the average weight of the non-alcoholic livers is 58 6 oz.

Taking the sexes separately—

alcoholic male livers = 68·88 oz.
„ female „ = 61 „
non-alcoholic male „ = 63 „
„ female „ = 45·8 „

Non-alcoholic cirrhosis was fatal from its effects in six cases (Nos. 7, 10, 28, 36, 41, 43), the average weight of the liver being 41·1 oz. (males 44·6 oz., females 37·6 oz).

Non-alcoholic cirrhosis was present in 29 cases where death occurred from some other cause; here the average weight of the liver was 62·2 oz. (65·3 oz. in males, 50 oz. in females). Thus there is a very marked difference between the average weight of fatal and of latent non-alcoholic livers, viz., 21·1 oz. in both sexes taken together, or 20·7 in males, 12·4 in females.

The increased weight of the cirrhotic livers is therefore partly accounted for by the increased weight of alcoholic livers and partly by the increased weight of latent cirrhotic livers whether alcoholic or non-alcoholic. But fatal non-alcoholic cirrhotic livers tend to diminish the average weight of cirrhotic livers generally.

Alcoholic cirrhosis was fatal in 36 cases, the average weight of the liver being 67·7 oz. (males 67·6 oz., females 68 oz.). In cases fatal from the effects of cirrhosis there is therefore a most striking difference between the weight of the liver in alcoholic and in non-alcoholic cases, viz. 26·6 oz. on the average for both sexes taken together, 23 oz. in males and 30·4 in females.

Alcoholic cirrhosis was present in 26 cases where death was due to some other disease; the average weight of the liver was 67·9 oz. (males 70·5 oz, females 55·2 oz). Thus there is no difference between the average weight of the alcoholic cirrhotic liver in fatal and in latent cases. This conclusion is contrary to general opinion.

In cases fatal from cirrhosis the heavier livers died at an earlier age than the lighter livers (*vide* pages 204, 205). In the cases fatal from other causes the same appears to hold good, though the cases at our disposal are not sufficiently numerous to prove the point. Thus, in 33 male cases in which the liver weighed more than 60 oz. the average age of death was 45·7 years, and in four female cases in which the liver weighed over 55 oz. the age of death was 46·7 years. While in three males in which the liver weighed under 50 oz. the average age was 58, and in three females in which the liver weighed under 45 oz. the average age was 53·6 years. The atrophy of advancing years may perhaps be a factor explaining this result.

Alcohol—A history of alcoholic excess was recorded in 64, or considerably more than half the total number; in 37 there was no history of alcohol, and in 13 cases the notes did not refer to the subject.

The average weight of all the alcoholic livers was 66·5 oz., the males being 68·88 oz. and females 64·8 oz.

The average weight of all the non-alcoholic livers was 58 oz., the males being 63 oz. and females 45·8.

The average of livers not definitely stated to be alcoholic or not, was 76·8 oz. (males 80 oz. and females 62 oz.). Since their weight is nearer that of the alcoholic livers, one is rather inclined thereby to regard them as belonging to that category, although there is no history to guide one either way. The inclusion of these livers helps to account for the fact that the average weight of all the livers is 65·49 oz., while the alcoholic livers averaged 66·5 oz., and the non-alcoholic livers 58 oz. The mean average of the alcoholic and of the non-alcoholic livers without these doubtful ones is 63 oz.

Taking an equal number of alcoholic livers in which malt liquors on the one hand and spirits on the other had been drunk, there was found to be very little difference between the average weights of the livers in the two series The number of cases available was very small, since in most cases where the form of stimulant taken is mentioned, both beer and spirits were taken. In 10 beer livers the average was 69 oz., and in 10 spirit livers 67 oz. The spirit livers appeared to be more frequently fatty. The number of cases is so small that no stress can be laid on these figures; they are mentioned, however, because an analysis of Dr. Foxwell's cases does not support, in fact militates against, the commonly received opinion that a beer drinker's liver is as a rule large and a spirit drinker's liver small.*

Microscopical Examination.—Forty-two livers were examined microscopically, and showed the ordinary though variable appearances of multilobular cirrhosis. In three cases of nodular cirrhosis, or, as it is sometimes called, multiple adenoma of the liver, the hepatic cells at the margin of the nodules were often by pressure so altered in shape as to resemble spindle cells, but we have not seen any reason to believe that they become changed into connective tissue cells.

The large size of the hepatic cells, the way they stain, and

**Birmingham Medical Review*, April, 1896, p. 221.

the comparative frequency of two nuclei in the nodules of this form of cirrhosis is explained by Hanot* as an attempt at repair or compensation on the part of the liver. This regeneration occurs in cases of the alcoholic hypertrophic cirrhosis described by Hanot and Gilbert.† This disease, which has no connection with Hanot's hypertrophic cirrhosis with chronic jaundice, is met with in cases of arrested or cured cirrhosis. In this way the large size of the latent cirrhotic livers met with in the bodies of people dead from accidents, etc., may be accounted for, at any rate in part.

There was one exceptional and interesting case (No. 8), a man, aged 37, who died of cirrhosis complicated with pulmonary tuberculosis. Microscopically this liver showed pericellular cirrhosis like that seen in congenital syphilis; there was "a diffuse intralobular small cell infiltration, and in places small patches of necrosed hepatic cells." Such cases in adults are rare, or at any rate seldom recognised. Dr. Price‡ has described an example of this change in a man aged 58, who, however, was not tubercular. This form of cirrhosis is described‖ as one of those occurring in tubercular hepatitis, and Adami§ compares it to an extensive pericellular cirrhosis in cattle which he has shown to be due to a diplococcus. The presence of areas of necrotic liver cells in our specimen is suggestive of the local action of a similar poison.

The various appearances of multilobular cirrhosis were seen in the remainder of the specimens. Reference to the varying prominence of the so-called new bile ducts is hardly necessary here;¶ but in one otherwise typically cirrhotic liver some of the small bile ducts were dilated—a very rare condition. In only one specimen (No. 92) were the appearances of Hanot's hypertrophic cirrhosis with chronic jaundice present.

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* Hanot. *Soc Méd. des Hôpit.*, July 10th, 1896.

† *Archiv. Général. de Méd.*, vol. 166, p. 250.

‡ *Guy's Hospital Reports*, series iii., vol. xxvii., p. 295.

‖ *Manuel de Médecine*, Debove et Achard, vol. 6, p. 161.

§ Allbutt's *System of Medicine*, vol. i., p. 121.

¶ See Saundby, *Trans. Path. Soc.*, London, vol. xxx.

An important bearing of the microscopical examination of these livers is on the question whether fatty change is so much commoner in the larger livers as to account for their increased bulk and weight. This is perhaps the commonly accepted opinion. Dr. Foxwell's statistics showed that there was no more fat in large than in small cirrhotic livers. Our figures, which, like his, are based on microscopic, not on naked eye observations, support this contention. In 24 livers weighing over 60 oz, 12, averaging 72·7 oz, were fatty; while 12, averaging 68·1 oz., were not fatty; while of 12 livers weighing less than 60 oz., 7, averaging 46·8 oz., were fatty; while 5, averaging 39·6 oz., were not fatty. It thus appears that to some extent fatty change does add to weight of the liver, but that it occurs equally in large and in small livers, and that half the large livers examined did not show any appreciable fatty change. Enlargement may be due to several factors—congestion, fatty change, extensive fibrous hyperplasia, or to the regeneration of the hepatic cells described by Hanot.

Tuberculosis.—Tubercle was present in 34 out of the whole 114 cases, or in 29·8 per cent.

Death was directly due to tubercle in some form or another in 17 cases; 9 of these were alcoholic.

Of the remaining 97 cases there was tubercle in the lungs, though sometimes obsolete, in 17. In Heitler's* statistics tubercle was present in the lungs in 5 per cent. of persons dying from diseases other than pulmonary consumption. The incidence of tubercle is therefore increased threefold in these cases of cirrhosis.

Of these 97 cases of cirrhosis 47 were fatal from the effects of the disease. In these cases pulmonary tubercle was present ten times, or 21·2 per cent.; while in the remaining 50 cases, in which cirrhosis was latent, pulmonary tubercle was present seven times, or 14 per cent.

Pulmonary tubercle is therefore more frequent in cases fatal from cirrhosis than in cases where cirrhosis is latent.

* Quoted by Fagge. *Principles and Practice of Medicine*, vol. i., p. 953. 1886.

The 17 cases of pulmonary tubercle were divided between the alcoholic and the non-alcoholic cases as follows:—55 of the 97 cases were alcoholic, and 11 of them, or 20 per cent., contained tubercle; while 23 were non-alcoholic, and 6 of them, or 26 per cent., contained tubercle. It therefore appears from these figures that tubercle is more frequent in non-alcoholic cirrhosis than in alcoholic cirrhosis. This conclusion is contrary to what one would naturally expect, and requires testing with a larger number of cases.

Spleen.—The average weight in all the cases was 9·8 oz. Taking the average weight as 7 oz. this shows a small increase

The average weight of the spleen in males was 10·17 oz, and in females 8·7 oz.

The average weight of the spleen in cases directly fatal from cirrhosis was 11 oz., being 11·94 oz. in the males and 8·56 oz. in the females.

The average weight of the spleen in the cases fatal from causes other than cirrhosis was 9 oz., being the same both for the males and for the females.

The average weight of the spleen in all cases of alcoholic cirrhosis was 10·4 oz., being 10·5 oz. in the males and 10 oz. for the females.

In non-alcoholic cases the average weight of the spleen was 8·7 oz., being 8·88 oz. in males and 8·3 oz. in the females.

In order to see whether any relationship exists between the size of the liver and spleen in cirrhosis the following percentages were extracted from the 114 cases.

In 43 male cases in which the liver weighed over 60 oz. (averaging 79·6 oz.) the spleen averaged 11 oz.; while in seven males in which the liver weighed under 50 oz. (averaging 39·4 oz.), the spleen weighed 9·4 oz.

In 11 female cases in which the liver weighed over 55 oz. (averaging 73·5 oz.), the spleen weighed 7·6 oz.; while in nine cases where the liver weighed less than 45 oz. (averaging 35·4 oz.), the spleen weighed as much as 9·8 oz.

Therefore, in male cases of cirrhosis, whether fatal from the

disease or from other causes, large livers are, as is generally thought, associated with a more considerable enlargement of the spleen than is seen when the livers are small. But in a corresponding collection of female cases the spleen was heavier in the series of small livers than in the large liver series.* These contradictory results seem to show that the weight of the spleen does not depend on the condition of the liver, but on some other factor or factors which may or may not be associated with increased weight of the liver.

A summary of the conclusions drawn from the foregoing data will be found at the end of the paper.

II.—CASES FATAL FROM CIRRHOSIS.

There were 47 cases in which death was directly due to cirrhosis. Of these 29 were males and 18 females. The average age of the 47 was 48·9 years—of the males 50·3 years, and of the females 46·66 years.

Ascites was present in 27 of the 29 males (93 per cent.), and in 9 of the females (50 per cent.).

Hæmorrhages, such as hæmatemesis, epistaxis, &c., were present in 10 of the males (34·4 per cent)., and in three of the females (16·6 per cent.).

Head symptoms, such as delirium or coma, were recorded in 18 of the 29 males (61·7 per cent.), and in 11 of the 18 females (61 per cent.).

Pulmonary tuberculosis was present in seven of the 29 males (24 per cent.), and in three of the 18 females (16 per cent). The cases where cirrhosis was present, but in which death was due to tuberculosis, are not included in this group of 47 cases, but are referred to elsewhere (page 209).

Alcohol.—Males.—There was a history of alcohol in 25 out of the 29 male cases; in one there was no history either way, and in three there was no evidence of alcohol. In three out of these four cases, the liver was below the normal weight (41, 31, 44 oz.); in the 4th (case 7) it weighed 59 oz., the mean of the four being

* Compare page 206.

43·8 oz.; while the average weight of the alcoholic livers was 67·6.

Females.—There was a history of alcohol in 13 cases. In two cases (No. 30, 32) the notes give no information, and in three cases (No. 36, 41, 43) there was no evidence of alcoholic excess, the average weight of these five was 45·8 oz., presenting a marked contrast to the average weight of the alcoholic livers, which was 68 oz. Of these five cases, one liver (case 43) was about the normal weight, 44 oz., one increased (case 30) 78 oz., and three less than normal (34, 35, 38 oz.)

It is interesting to note then in 21 livers examined by Dr. Kerr * the smallest, weighing 32 oz., was the only one in which alcoholism was improbable.

Both Sexes.—In the six non-alcoholic cases, the weight of the liver averaged 41 oz., then adding the three cases in which there were no notes, the average for the nine cases is 44·8 oz. The difference between the average weight of fatal alcoholic (68 oz.) and the fatal cases in which there was no definite history of drink (44·8) is most striking.

There was a history of alcoholism in 38 out of these 47 cases fatal from cirrhosis, or 80·8 per cent., while in the 67 cases of cirrhosis where death was due to some other cause 26 cases only, or 38·8 had an alcoholic history. That alcoholism is a cause of cirrhosis there can be no question, but how it acts is doubtful. Experimentally, alcohol, as a rule, fails to induce cirrhosis in animals just as it so often does in drunkards and in the subjects of delirium tremens. Krawkow † has suggested that alcohol leads to cirrhosis by giving rise to intestinal catarrh and so to the absorption of irritating bodies from the intestine, which are the responsible cause of cirrhosis.

Weight of the Liver.—The average weight of the liver was 63·17 oz., in the males 64·2 oz., and in the females 61·4 oz., showing in both cases a considerable excess from the normal, taking 53 oz. and 45 oz. as the normal in each sex.

* *Med. Chronicle*, p. 314, Jan. 1896.

† *Archiv. Experiment. Med.*, 1, 2, 1896.

It will be seen that the average weight of the liver in cases fatal from cirrhosis is practically the same as that of all the cirrhotic livers whether from cases dead of cirrhosis or from other causes, namely 65.49 oz.

The weight of the male livers is the same as that obtained by Dr. Foxwell, while that of the females (61·4 oz.) is considerably in excess of his figures (48·7 oz.), but has the advantage of being taken from a larger number of cases. The extremes in the males were 106 and 32 ounces, and in the females 144 and 34 ounces.

In 5 of the males the liver weighed below 50 oz., the average weight being 38 oz. and the average age 52 years; ascites was present in all, and extreme in two. In three of these cases there were head symptoms, coma in two of them and delirium in one. In two (Cases 10, 28) out of the five cases there was no evidence of alcoholism, and in a third (Case 2) the history did not refer to the question; the other two cases (Nos. 6, 15) were heavy drinkers.

It is striking that in three out of the four cases of fatal cirrhosis in men, in which there was not a definite history of alcohol, the liver was below the normal weight.

In 11 males the liver weighed between 50 and 60 ounces (taking these as the limits of the normal), the average weight being 56 oz. and average age 49·4 years. Ascites was absent once, present in slight amount once, moderate in quantity three times, and marked in six. Head symptoms were present in seven, absent in the other four.

In 12 males the liver weighed over 60 oz. (averaging 82·5 oz.), the average age was 49·8. One case died at 80; if this exceptional case is excluded, the average age comes out at 47 years. Ascites was absent once, slight twice, moderate twice, marked seven times. Head symptoms were present in eight, absent in four. They were absent in three cases in which ascites was marked, and in one instance were associated with slight cirrhosis. Taking the decennial periods, there were no fatal cases of cirrhosis under 30.

Between 30-40	there were	7,	the average	weight	of liver	being	71·4 oz.
„ 40-50	„	5	„	„	„	„	68·6 „
„ 50-60	„	13	„	„	„	„	60 „
„ 60-70	„	1	„	„	„	„	52 „
„ 70-80	„	3	„	„	„	„	60 „

In six women the liver weighed 40 oz. or less, the average weight being 35·1 oz, the average age being 51·3. Of the three non-alcoholic female cases two weighed less than 40 oz. Ascites was absent in two and marked in four. In one of the cases, where there was no ascites, the patient was delirious. One other patient only presented head symptoms; she was also ascitic. In one patient there was no ascites and no head symptoms.

In two women the liver weighed nearly the normal weight, 48, 44 oz.; their ages were 40 and 49 years. Ascites was marked in both, and both presented head symptoms.

In nine women the liver weighed over 50 oz., the average weight being 82·4 oz., and average age 42 years. Seven were delirious or presented very definite head symptoms, and in only one of these was there any ascites; of the remaining two cases, one presented slight ascites and the other neither ascites or head symptoms.

Taking the decennial periods:—Between 20 and 30 years of age there were two fatal cases; the livers weighed 30 and 72 oz. respectively; the large liver was associated with delirium and without ascites; the small liver with ascites but no head symptoms.

Between 30-40 yrs.	3 cases,	livers weighing	144, 58, 64 oz.,	averaging	88·6 oz.		
„ 40-50	„ 4	„	„	„ 48, 88, 100, 44 oz.	„	70	„
„ 50-60	„ 8	„			„	45	„
„ 60-70	„ 1	„				34	„

Weight of Spleen.—In male cases fatal from cirrhosis the average weight of the spleen was 11·94 oz. In five cases where the weight of liver was below 50 oz. the average weight of spleen was 11·6 oz. In 11 cases, where the liver weighed between 50 and 60 oz., the average weight of the spleen was 11·9 oz.; and in 11 cases, where the weight of the liver was above 60 oz., the average weight of the spleen was 12·5 oz.

In women, the weight of the spleen in 15 cases in which it is given was 8·56 oz. The extremes were 2 and 20 oz., both (cases 39, 41) in livers weighing about 35 oz., in patients aged 50 and 52 respectively; there was no ascites in the first, while it was marked in the case in which the spleen weighed 20 oz. In six cases where liver weighed 40 oz. or under, the average weight of spleen was 9·3; and in seven cases where the liver weighed more than 50 oz. (averaging 82·4 oz.), the spleen averaged 8·4 oz. In two cases where the weight of the liver was about the normal, the spleen weighed 6 oz. in one, 8 oz. in the other.

From these figures the spleen, though enlarged in both sexes, appears to vary inversely with the weight of the liver in women, and to vary directly as the weight of the liver in men.* As seen in cases 5 and 12, 39 and 41, the spleen may vary very widely in cases where the liver is of practically the same weight. The extreme enlargement seen in some cases of cirrhosis is probably, though this is not proved in this paper, due to some concomitant toxæmic condition. It may be safely said that in cases fatal from cirrhosis, the weight of the spleen does not bear any constant relation to the weight of the liver.

CONCLUSIONS.

These data show that :—

1. In fatal cases of cirrhosis a large liver is found more frequently early in life; as age advances the weight of the cirrhotic liver diminishes. This association between enlarged cirrhotic livers and the advent of an earlier fatal result than that in small cirrhotic livers has often been insisted upon. Price† considered that large cirrhotic livers represent a more acute form of the disease than the small. Pitt‡ found the average age of death of patients with large livers to be 45·7 years, while those with small livers averaged nearly three years longer. In our cases the heavier livers (adding male and female together) died at the

* Compare page 201. † *Guy's Hospital Reports.* Series iii., vol. xxvii.
‡ *Path. Soc. Trans.*, vol. xl., p. 348.

age of 49, and the smaller at the age of 51·5, showing much the same ratio as in Pitt's cases.

2. The average weight of the liver in fatal cases of cirrhosis is considerably increased, the average weight being 63 oz. Twenty-six, or 80 per cent., of the cases are alcoholic, and in them the average weight of the liver is 67·7 oz.; of the remaining 20 per cent., of whom there are 12·5 per cent. non-alcoholic and 7·5 per cent. doubtful, the average weight of the liver is 44·8 oz. The average weight of the liver in fatal non-alcoholic cirrhosis is only 41 oz

3. The liver of fatal alcoholic cirrhosis is considerably larger, while the liver of fatal non-alcoholic cirrhosis is smaller than natural.

4. In the cases fatal from cirrhosis, the liver weighed less than normal in eleven cases, or 23 per cent. This is rather less than Dr. Price's estimate of 27 per cent.

5. Among the female patients a large liver, correlated with head symptoms and with little or no ascites, is more frequent earlier in life, while later in life a small liver and ascites are more frequent.

6. Ascites appears to be commoner in males, but the antagonism between ascites and head symptoms is not so plain as in the female cases.

7. In both sexes the decade between 50–60 years of age is the most fatal from cirrhosis. Hilton Fagge,* however, found a larger number of fatal cases between 40-50 than in any other decennial period.

8. The weight of the spleen does not bear any constant relation to that of the liver in cases fatal from cirrhosis.

These and further conclusions will be found at the end of the paper.

III.—CASES FATAL FROM CAUSES OTHER THAN CIRRHOSIS.

Cirrhotic Livers from Patients Dying of Surgical Accidents.—There were four cases (No. 48-51) all males without any history of alcohol or any evidence of tubercle in their bodies. The

* *Principles and Practice of Medicine*, 1886, vol. ii.. p. 289.

average age (only given in three) was 47·3 years. The average weight of the liver was 77·2 oz., and of the spleen 7 oz.

Cirrhotic Livers from Patients Dying of Pneumonia.—There were nine cases (No. 52–60), seven males and two females, the average age was 49·4, being little more than a year higher than that of all the cases of cirrhosis, and only half a year higher than the cases fatal from cirrhosis

The average weight of the livers was 74 oz., part of this increased weight may be explained as due to cloudly swelling, &c., the direct result of the pneumonia; the spleen, however, averaged 6·5 oz.

Cirrhotic Livers in Patients Dying from Granular Kidney.—There are eight cases (Nos. 61–68), six males and two females. Average age 52·25 years, being three and a half years higher than that of patients dying from the effects of cirrhosis.

The average weight of the liver was 55·5 oz. (males 60·6, females 40 oz), being 10 oz. below the average of the whole series of cirrhotic livers. Dr. Price * found that the granular kidney was associated with a large cirrhotic liver more often than with a small one, while Dr. Newton Pitt's † figures pointed, like ours, to the opposite conclusion.

The average weight of the spleen was 7 oz., *i.e.*, normal It is interesting in this connection to note that Dr. Foxwell ‡ found clinically, that out of five cases of Bright's disease the spleen was in two cases one and a quarter times more increased in size than was the liver.

Cases Fatal from Malignant Diseases of other Organs.—In the four cases (Nos. 69–72) three males and one female, the average age was 54 years, and the weight of the liver 63·5 oz., and of the spleen 6 oz. There was an alcoholic history in one case and obsolete tubercle in one, but they did not coincide.

Cases Fatal from Cardiac Failure.—Five cases (Nos. 73-77), all in males with an average age of 56·25 years, and mean weight of the liver 70·25 oz. The weight of the spleen (only

* *Guy's Hospital Reports*, series iii., vol. xlii., p. 295.

† *Trans. Path. Soc.*, vol. xl., p. 348.

‡ *Birmingham Medical Review*, March, 1896, p. 135.

given in three cases) averaged 6·3 oz. Two of the patients had delirium tremens and another was brought in dead with fatty degeneration of the heart.* It is quite possible that the condition of the heart in these three cases was due to alcohol. The two remaining cases did not appear to be due to this factor, but to be secondary to emphysema and to aortic disease respectively.

MISCELLANEOUS AFFECTIONS IN WHICH CIRRHOSIS EXISTED.

Seventeen cases (Nos. 78–94) are included in this group. The mean age was 49·81 years, being one year higher than the average age of patients dying from the effects of cirrhosis. The average weight of the livers was 73·6 oz., being much above that of cases fatal from cirrhosis (63·17). In the case of pylephlebitis (No. 91) the weight of the liver, 144 oz, was undoubtedly increased as a result of that disease; neglecting this case, the average weight comes out at 68·5 oz. The average weight of the spleen was 9·5 oz. There were three cases of diabetes, but they did not in any way resemble the hypertrophic pigmentary cirrhosis of diabetes or *diabète bronzé* described by Hanot † and Chauffard.

CASES FATAL FROM TUBERCULOSIS.

There were seventeen cases (Nos. 95–111), twelve being fatal from pulmonary tuberculosis, three from general tuberculosis, and one each from tubercular meningitis and tubercular peritonitis. The average age was 38·5 years (42·4 years for males, 39 years for females). There was an alcoholic history in nine, no evidence of alcohol in six, and no notes to guide one either way in two.

The average weight of the liver was 62·6 oz. (64·9 oz. in males, 55·7 oz. in females). A sufficient number of the livers were not examined microscopically to enable one to say to what extent the enlargement was due to fat. In the five cases examined, two were fatty and three were not.

* Compare cases of fatty degeneration of the heart induced by alcohol described by Dr. Mott, *Trans. Path. Soc.*, vol. xl., p. 57, p. 340.

† *Revue de Méd.*, 1882, p. 385. *British Medical Journal*, 1896, vol. 1, p. 206.

The spleen averaged 12 oz. (12·5 oz. in females, 11·9 oz. in males).

RELATION OF THE WEIGHT OF THE SPLEEN TO THAT OF THE LIVER IN CASES OF LATENT CIRRHOSIS.

In 33 males in whom the liver weighed more than 60 oz. (averaging 78·6 oz.) the spleen averaged 10·5 oz. There were but three cases in which the liver weighed less than 50 oz., and in two only is the weight of the spleen given, being 4 oz. in each.

In four females in whom the liver weighed over 55 oz. (averaging 70·7 oz) the average weight of the spleen was 6·25 oz., while in three female cases in which the liver weighed less than 45 oz., averaging 36 oz., the spleen weighed 7·8 and 18 oz., averaging 11 oz.

These figures are manifestly too scanty to base any conclusions on.

WEIGHT OF SPLEEN IN CASES OF LATENT CIRRHOSIS.

It will be seen that, in the 67 cases in which death was due to some cause other than cirrhosis, although the spleen weighed on an average 9 oz., it scaled about its normal weight (7 oz.) or rather less, except in the two cases of alcoholic neuritis, in the groups of the "Miscellaneous Affections" (9·5 oz.), and of the cases fatal from tuberculosis (12 oz.), in many of which the cause of death, being associated with sepsis or toxemia, may well have been responsible for the enlargement of the spleen. From this it appears probable that in latent cirrhosis pure and simple the spleen is not enlarged, whereas in cases fatal from the effects of cirrhosis, the organ is enlarged. (*Vide* p. 206.)

IV.—CONCLUSIONS.

1. There is a high rate of mortality from tuberculosis in cases of cirrhosis (*vide* p. 194), and in fatal cases of cirrhosis, pulmonary tubercle, often obsolete, is found in 21·2 per cent.; while in latent cases of cirrhosis, death occurring from other causes, pulmonary tubercle was less frequent, being present in 14 per cent. (*Vide* p. 200.)

2. Taking all the cases, cirrhosis is commoner in males, 5-2, but it is more often latent than in females; the proportion of males to females in cases fatal from cirrhosis is 3-2, while it is latent four times oftener in men. (*Vide* p. 195.)

3. Cirrhosis is fatal to women earlier (3 years 8 months, or at the age of 46·6 years) in life than in males (50·3 years). (*Vide* p. 195.)

4. There is little or no difference between the average ages of persons dying from cirrhosis and those dying from other causes but with cirrhotic livers. (*Vide* p. 195.)

5. Alcoholic cirrhosis is fatal earlier (3 years 4 months on the average) than non-alcoholic cirrhosis; this is more especially so in females. (*Vide* p. 196.)

6. Cirrhotic livers are, on the average, considerably increased in weight (65·49). (*Vide* p. 196.)

7. The alcoholic cirrhotic liver is heavier than the non-alcoholic cirrhotic liver. (*Vide* p. 196.)

8. The liver of cases dying from non-alcoholic cirrhosis is very much lighter (weighing 41 oz.) than the liver of cases dying from alcoholic cirrhosis (67·7 oz). (*Vide* p. 196.)

9. Alcoholic cirrhosis is commoner than non-alcoholic cirrhosis. (*Vide* p. 197.)

10. There is not any difference between the weight of the alcoholic liver in cases fatal from cirrhosis and in cases with cirrhotic livers fatal from other diseases. (*Vide* p. 197.)

11. There is, on the other hand, a marked difference (20 oz.) between the weight of the non-alcoholic livers in cases fatal from cirrhosis and in cases with cirrhotic livers dying from other diseases. (*Vide* p. 196.)

12. In cases fatal from cirrhosis, the heavier livers are found at an earlier age than the lighter ones. (*Vide* pp. 204, 205.)

13. When cirrhosis is latent, the weight of the liver diminishes with age. (*Vide* p. 197.)

14. Malt liquors and spirits may both give rise to enlarged cirrhotic livers. Our figures, though scanty, are opposed to the view that beer necessarily or usually gives rise to an enlarged and spirits to a contracted cirrhotic liver. (*Vide* p. 198.)

Fatty change was more marked, contrary to expectation, in spirit drinkers' livers.

15. Fatty change occurs equally in large and small cirrhotic livers; half of the larger livers (weighing over 60 oz.) did not show any fatty change. (*Vide* p. 200.)

16. In cases fatal from cirrhosis, the liver weighs less than normal in 23 per cent of the cases. (*Vide* pp. 204, 205.)

17. Of cases fatal from cirrhosis, 80 per cent. were alcoholic, 12·7 per cent. non-alcoholic, and in the remainder there was no evidence either way. (*Vide* p. 203.)

18. In women dying from the effects of cirrhosis a large liver associated with head symptoms and with little or no ascites is more frequent earlier in life, while later a small liver and ascites are more often met with. (*Vide* p. 205.)

19. Ascites and hæmorrhages were commoner in males than in females dying from cirrhosis. In males, the antagonism between head symptoms and ascites is not so plain as in females, although head symptoms occurred in the same proportion (61 per cent.) in both. (*Vide* p. 202.)

20. In both sexes the decade between 50 and 60 years of age is the one in which most deaths result from cirrhosis. (*Vide* p. 205.)

21. In patients with latent cirrhosis the liver was generally much enlarged, weighing on an average 67·19 oz. (*Vide* p. 196.) In only one group—cases fatal from granular kidney—was this not so. The weight of the liver in fatal granular kidney approaches the normal weight. (*Vide* p. 208.)

22. Taking the average weight of the normal spleen as 7 oz., it is increased in the cases fatal from cirrhosis. (*Vide* pp. 205, 206.) Whereas it appears that latent cirrhosis does not, apart from complications, lead to splenic enlargement. (*Vide* p. 210.)

23. The average weight of the spleen is heavier in alcoholic than in non-alcoholic cases of cirrhosis. (*Vide* p. 201.)

24. In cases fatal from cirrhosis there is no constant relation between the weight of the liver and that of the spleen. (*Vide* p. 206) This appears to be true also of all cases of cirrhosis—fatal and latent taken together. (*Vide* p. 202.)

LIST OF CASES.

CASES FATAL FROM CIRRHOSIS.

MALES.

No.	*Age.*	*Alcohol.*	*Tubercle.*	*Head Symptoms.*	*Ascites.*	*Hæmatemesis.*	*Weight of Liver*	*Spleen.*
1	54	much	no	coma	much	no	64 oz.	11 oz.
2	51	no notes	no	none	slight	no	41 oz.	18 oz.
3	50	much	no	none	much	no	76 oz.	14 oz.
4	71	much	no	none	much	yes	85 oz.	18 oz.
5	58	much	no	delirium	no	much	64 oz.	3 oz.
6	52	much	yes	coma	slight	no	43 oz.	20 oz.
7	47	no	no	no	moderate	no	59 oz.	19 oz.
8	37	much	yes	delirious	much	yes	52 oz.	10 oz.
9	80	much	yes	no	much	no	66 oz.	9½ oz.
10	71	no	no	delirious	moderate	yes	31 oz.	5 oz.
11	35	much	yes	no	much	no	71 oz.	17 oz.
12	47	much	no	delirious	moderate	melæna	60 oz.	23 oz.
13	41	much	no	delirious	much	no	104 oz.	14 oz.
14	36	much	yes	coma	moderate	much	56 oz.	8 oz.
15	55	much	no	coma	much	no	32 oz.	5 oz.
16	65	much	no	delirious	much	yes	52 oz.	5 oz.
17	53	slight	no	drowsy	much	no	106 oz.	—
18	35	much	no	delirious	moderate	epistaxis	97 oz.	16 oz.
19	55	much	no	no	much	no	—	7 oz.
20	31	much	no	delirious	much	no	74 oz.	14 oz.
21	59	much	yes	coma	moderate	moderate	57 oz.	17 oz.
22	58	much	no	no	much	no	52 oz.	10 oz.
23	56	much	no	no	much	no	58 oz.	10 oz.
24	57	much	no	coma	moderate	no	76 oz.	12 oz.
25	33	much	no	delirium	slight	no	106 oz.	10 oz.
26	44	moderate	no	coma	no	no	60 oz.	7 oz.
27	52	much	no	no	slight	no	52 oz.	10 oz.
28	33	no	no	no	much	no	44 oz.	10 oz.
29	43	much	yes	drowsy	much	moderate	60 oz.	12 oz.

FEMALES.

30	52	no notes	no	no	slight	no	78 oz.	4 oz.
31	54	much	no	no	much	no	40 oz.	8 oz.
32	58	no notes	no	no	no	no	38 oz.	8 oz.
33	54	much	yes	D. T.	no	no	68 oz.	7 oz.
34	53	much	no	coma, aphasia	no	no	70 oz.	7 oz.
35	58	moderate	no	no	much	no	—	—
36	65	no	no	drowsy	much	epistaxis	34 oz.	2½ oz.
37	34	moderate	no	delirious	moderate	no	58 oz.	7 oz.
38	29	moderate	no	no	much	no	30 oz.	15 oz.
39	50	much	no	delirious	no	yes	34 oz.	2 oz.
40	49	much	yes	delirious	much	no	48 oz.	6 oz.
41	52	no	no	no	much	no	35 oz.	20 oz.
42	34	much	no	no	no	no	144 oz.	—
43	47	no	no	coma	much	much	44 oz.	8 oz.
44	40	much	no	"insanity"	no	no	100 oz.	12 oz.
45	27	much	yes	delirium	no	no	72 oz.	—
46	46	much	no	delirium	no	no	88 oz.	16 oz.
47	38	much	no	delirium	no	no	64 oz.	6 oz.

PATIENTS DYING FROM SURGICAL ACCIDENTS.

No.	*Sex.*	*Age.*	*Alcohol.*	*Tubercle Present.*	*Weight of Liver.*	*Weight of Spleen.*	*Ascites.*
48	M	56	no	no	58 oz.	4 oz.	no
49	M	55	no	no	87 oz.	11 oz.	no
50	M	—	no	no	60 oz.	5 oz.	no
51	M	31	no	no	104 oz.	8 oz.	no

CASES FATAL FROM PNEUMONIA.

No.	*Sex.*	*Age.*	*Alcohol.*	*Tubercle Present.*	*Weight of Liver.*	*Weight of Spleen.*	*Ascites.*
52	F	54	no notes	no	78 oz.	4 oz.	no
53	F	52	no	no	72 oz.	8 oz.	no
54	M	45	no notes	no	80 oz.	10 oz.	slight
55	M	37	much	no	64 oz.	2½ oz.	no
56	M	46	much	no	110 oz.	5 oz.	no
57	M	56	no notes	no	—	—	no
58	M	73	no	obsolete	48 oz.	—	no
59	M	40	no	no	76 oz.	5 oz.	no
60	M	42	no	phthisis	64 oz.	11 oz.	no

CASES FATAL FROM GRANULAR KIDNEY.

No.	*Sex.*	*Age.*	*Alcohol.*	*Tubercle Present.*	*Weight of Liver.*	*Weight of Spleen.*	*Ascites.*
61	M	54	much	no	58 oz.	7 oz.	moderate
62	M	53	much	no	56 oz.	12 oz.	moderate
63	M	43	no	no	64 oz.	8 oz.	slight
64	M	55	no	no	62 oz.	7 oz	no
65	M	39	much	no	80 oz.	7 oz.	no
66	M	56	much	no	44 oz.	—	much
67	F	70	no	no	44 oz.	4 oz.	no
68	F	48	no	obsolete	36 oz.	4 oz.	no

CASES FATAL FROM MALIGNANT DISEASE.

No.	*Sex.*	*Age.*	*Nature of Growth.*	*Alcohol.*	*Tubercle Present.*	*Weight of Liver.*	*Weight of Spleen.*
69	F	49	sarcoma uteri	no	no	64 oz	5 oz.
70	M	63	epithelioma	much	no	64 oz.	5 oz.
71	M	51	carcinoma gulæ	no	obsolete phthisis	58 oz.	6 oz.
72	M	35	epithelioma vesicæ	no	no	68 oz.	8 oz.

CASES FATAL FROM CARDIAC FAILURE.

No.	*Sex.*	*Age.*	*Alcohol.*	*Tubercle Present.*	*Weight of Liver.*	*Weight of Spleen.*	*Ascites.*
73	M	52	no notes	no	74 oz.	6 oz.	no
74	M	55	much	no	68 oz.	5 oz.	no
75	M	—	no	no	—	—	no
76	M	67	much	no	88 oz.	—	moderate
77	M	51	no	no	51 oz.	8 oz.	no

CASES FATAL FROM MISCELLANEOUS AFFECTIONS.

No.	*Sex.*	*Age.*	*Disease.*	*Alcohol.*	*Tubercle.*	*Weight of Liver.*	*Weight of Spleen.*	*Ascites.*
78	F.	48	cerebral softening	no	no	24 oz.	7 oz.	no
79	M.	63	,, hæmorrhage	no notes	no	65 oz.	10 oz.	no
80	M.	42	,, ,,	no	no	72 oz.	16 oz.	slight
81	M.	56	,, ,,	no	no	51 oz.	3 oz.	no
82	M.	48	cerebral tumour	no	no	—	—	no
83	M.	28	,, ,,	much	phthisis	105 oz.	9½ oz.	slight
84	M.	67	acute myelitis	no	phthisis	50 oz.	3 oz.	no
85	M.	39	diabetes	much	no	48 oz.	5 oz.	no
86	M.	68	diabetes	no	phthisis	53 oz.	5 oz.	no
87	M.	55	diabetes	a little	no	68 oz.	8 oz.	no
88	M.	38	pyæmia	no	no	78 oz.	13 oz.	no
89	M.	49	bronchitis	much	no	91 oz.	10 oz.	no
90	M.	47	stricture of rectum	no notes	no	93 oz.	9 oz.	no
91	M.	51	pylephlebitis	no notes	no	144 oz.	10 oz.	no
92	F.	31	sub-phrenic abscess	yes	no	—	—	moderate
93	M.	63	peritonitis	no	no	76 oz.	6 oz.	no
94	M.	54	endocarditis, acute	no notes	no	86 oz.	28 oz.	no

CASES FATAL FROM PULMONARY TUBERCULOSIS.

No.	*Sex.*	*Age.*	*Alcohol.*	*Weight of Liver.*	*Weight of Spleen.*
95	M	31	no	76 oz.	4 oz.
96	M	67	no	50 oz.	9 oz.
97	M	29	much	56 oz.	6 oz.
98	M	28	no	56 oz.	7 oz.
99	M	50	much	68 oz.	15 oz.
100	M	32	much	—	—
101	M	42	no	77 oz.	29 oz.
102	M	33	much	58 oz.	8 oz.
103	M	36	much	74 oz.	8 oz.
104	M	35	much	64 oz.	8 oz.
105	M	33	no	65 oz.	12 oz.
106	F	35	no	60 oz.	17 oz.

CASES FATAL FROM GENERAL TUBERCULOSIS.

107	M	42	much	77 oz.	29 oz.
108	M	51	no notes	58 oz.	8 oz.
109	F	29	yes	68 oz.	20 oz.

CASE FATAL FROM TUBERCULAR MENINGITIS.

110	F	39	no notes	55 oz.	5 oz.

CASE FATAL FROM TUBERCULAR PERITONITIS.

111	F	54	much	40 oz.	8 oz.

CASE FATAL FROM ALCOHOLIC PERIPHERAL NEURITIS.

No.	*Sex.*	*Age.*	*Alcohol.*	*Tubercle.*	*Weight of Liver.*	*Weight of Spleen.*	*Ascites.*
112	F	59	much	no	44 oz.	18 oz.	no
113	F	43	much	no	—	—	—
114	F	32	much	no	69 oz.	8 oz.	slight

THE "LANCET" AND THE HYDERABAD COMMISSIONS ON CHLOROFORM.*

THE present volume is a reproduction of the reports published in the *Lancet* in 1893, with the view of supplementing the work of the second Hyderabad Commission, which investigated the question experimentally. It will be remembered that Dr. Lauder Brunton represented the *Lancet* on this Commission, and that he assisted to draw up the able reports which appeared in the *Lancet* in 1890. The Clinical Inquiry was undertaken by Dr. Dudley Buxton, at the request of the *Lancet*, and his report appeared in the pages of that journal in 1893.

Although it may be open to question whether any really practical diminution in the anæsthetic death-rate has followed from these several Commissions, it may not be without interest to our readers if we recall the leading points in these inquiries to their minds.

The first Hyderabad Chloroform Commission was appointed by the Nizam's Government, on the recommendation of Surgeon-Major Laurie, in 1888, to make a series of investigations in connection with the effects of chloroform on dogs. Experiments were performed on 141 dogs with chloroform vapour by inhalation. In dogs chloroformed till death, the succession of phenomena was found to be (1) partial loss of sensation, with slightly increased reflex irritability, followed by (2) complete loss of sensation and of reflex action; (3) cessation of respiration; (4) absence of pulse of femoral artery; and, finally, (5) stoppage of heart's action. A second series of experiments, where artificial respiration was performed after arrest of complete anæsthesia, led to the following deductions.

* The *Lancet* and the Hyderabad Commissions on Chloroform, being the Report of the *Lancet* Commission appointed to investigate the subject of the Administration of Chloroform and other Anæsthetics from a clinical standpoint, together with the Reports of the first and second Hyderabad Chloroform Commissions. London: Office of the *Lancet*. 1889.

(1) In no case did arrest of cardiac action from syncope take place during the first stage, nor indeed in any other stage. (2) In no case was there reflex inhibition of the heart's action in this or any other stage. (3) The inhalation of chloroform vapour, no matter in what doses or in what manner carried out, cannot kill a dog by directly acting on its heart. We must invariably affect the nervous mechanism of respiration before involving the cardiac centres of the medulla oblongata or affecting the contractures of the ventricles and the auricles to any extent. (4) The Commission further considers that chloroform vapour administered to dogs never kills by acting on the intra-cardiac ganglia either primarily or secondarily. It is impossible to produce syncope from chloroform in dogs.

The second Commission undertook to investigate the way in which chloroform kills, and whether the condition of the animal at the time of the administration can be a determining cause of a peculiar form of fatality. The results in one respect were uniform. In every case where chloroform was pushed the respiration stopped before the heart. The following are the practical conclusions which the Commission thought may fairly be deduced from their experiments :—

1. Recumbent position on the back and absolute freedom of respiration are essential.

2. If during an operation the recumbent position cannot from any cause be maintained during chloroform administration, the utmost attention to the respiration is necessary to prevent asphyxia or an overdose. If there is any doubt whatever about the state of respiration, the patient should at once be restored to the recumbent position on the back.

3. To ensure absolute freedom of respiration, tight clothing of every kind, whether in the neck, chest, or abdomen, is to be strictly avoided, and no assistants or bystanders should be allowed to exert pressure on any part of the patient's thorax or abdomen, even though the patient be struggling violently. If struggling ever occur, it is always possible to hold a patient down by pressure on the shoulders, pelvis, or legs without doing

anything which can by any possibility interfere with the free movement of respiration.

4. An apparatus is not essential, and ought not to be used, as being made to fit the face it must tend to produce a certain amount of asphyxia; moreover, it is apt to take up part of the attention which is required elsewhere. A convenient form of inhaler is an open cone or cap, with a little absorbent wool inside the apex.

5. At the commencement of inhalation care should be taken by not holding the cap too close over the mouth and nose, to avoid exciting struggling or holding the breath.

6. If struggling or holding the breath do occur, great care is necessary to avoid an over-dose during the deep inspirations which follow. When quiet breathing is ensured as the patient begins to go over, there is no reason why the inhaler should not be applied close to the face; and all that is then necessary is to watch the cornea and see that the respiration is not interfered with.

7. In children, crying ensures free admission of chloroform into the lungs; but as struggling and holding the breath can hardly be avoided, and one or two whiffs of chloroform may be sufficient to produce complete insensibility, they should always be allowed to inhale a little fresh air during the first deep inspirations which follow. In any struggling persons—but especially in children—it is essential to remove the inhaler after the first or second deep inspiration, as enough chloroform may have been inhaled to produce deep anæsthesia, and this may only appear or may deepen after the chloroform is stopped. Struggling is best avoided in adults by making them blow out hard after each inspiration during the inalation.

8. The patient is as a rule anæsthetised and ready for the operation to be commenced when unconscious winking is no longer produced by touching the surface of the eye with the tip of the finger. The anæsthetic should never under any circumstances be pushed till the respiration stops; but when once the cornea is insensitive the patient should be kept gently under by

occasional inhalation, and not be allowed to come out and renew the stage of struggling and resistance.

9. As a rule no operation should be commenced until the patient is fully under the influence of the anæsthetic, so as to avoid all chance of death from surgical shock or fright.

10. The administrator should be guided as to the effect entirely by the respiration. His only object while producing anæsthesia is to see that the respiration is not interfered with.

11. If possible the patient's chest and abdomen should be exposed during inhalation, so that the respiratory movements can be seen by the administrator. If anything interferes with the respiration in any way, however slightly, even if this occurs at the commencement of administration, if breath is held, or if there is stertor, the inhalation should be stopped until the breathing is natural again. This may sometimes create delay and inconvenience with inexperienced administrators, but experience will make any administrator so familiar with respirators' functions under chloroform that he will in a short time know almost by intuition whether anything is going wrong, and be able to put it right without delay before any danger arises.

12. If the breathing becomes embarrassed, the lower jaw should be pulled or pushed from behind the angles forward, so that the lower teeth protrude in front of the upper. This raises the epiglottis and frees the larynx. At the same time it is well to assist the respiration artificially until the embarrassment passes off.

13. If by any accident the respiration stops, artificial respiration should be commenced at once, while an assistant lowers the head and draws forward the tongue by Howard's method, assisted by compression and relaxation of the thoracic walls. Artificial respiration should be continued until there is no doubt whatever that natural respiration is completely re-established.

14. A small dose of morphia may be injected sub-cutaneously before chloroform inhalation, as it helps to keep the patient in a state of anæsthesia in prolonged operations. There is nothing to show that atropine does any good in connection with the administration of chloroform, and it may do a great deal of harm.

15. Alcohol may be given with advantage before operation under chloroform provided it does not cause excitement and merely has the effect of giving a patient confidence and steadying the circulation.

The Commission has no doubt whatever that if the above rules be followed chloroform may be given in any case requiring an operation with perfect ease and absolute safety, so as to do good without the risk of evil.

The *Lancet* Commission appointed to investigate the subject of the administration of chloroform and other anæsthetics from a clinical standpoint issued a monumental report of more than a hundred folio pages. The labours of Dr. Dudley Buxton in connection with this have been almost stupendous. His deductions drawn from the report are as follows :—

1. That the death-rate under anæsthetics heretofore has been unduly high, and may, by improved methods and greater care, be lowered.

2. That ether, when properly given from an inhaler permitting graduation of the strength of the vapour, is the safest anæsthetic in temperate climes for general surgery.

3. That nitrous oxide gas should be employed for minor surgery, and should replace chloroform in dental surgery.

4. That chloroform, when given by a carefully trained person, is a comparatively safe body, but is not in any case wholly devoid of risk.

5. That no age or nature is free from danger under anæsthetics.

6. That the perils of anæsthetics, however slight, demand that the undivided attention of a duly qualified and trained medical man should be given to the administration of the anæsthetic.

The volume before us will live as a "classic" on the subject with which it deals. It is full of tabulated reports, detailed experiments, manometric tracings, etc., each of which merits full and careful consideration. The thanks of the whole medical profession are due to the *Lancet* for issuing in a single volume all that is worth knowing on this important subject up to date.

ON RETENTION OF THE MENSES.

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RETENTION of the menses is an exceedingly rare condition—as rare as suppression of the menses is common. It is a condition full of danger for the patient, full of anxiety and difficulty for the surgeon. It is, moreover, one of great interest from the side light it throws on some of the problems of pelvic pathology. I make no apology, therefore, for relating my own experience, limited though it be, of the lesion.

If the duct of a secreting gland be obstructed or occluded, the secretion collects in the cavity of the gland and distends it into a retention cyst. Thus, if the ureter be obstructed by a calculus, the renal secretion distends the kidney into a fluctuating tumour—a hydronephrosis. Should the fluid be infected with certain micro-organisms, suppuration occurs, and the kidney becomes a bag of pus—a pyonephrosis.

By precisely similar processes, if the cervix be occluded and the outflow from the uterus prevented, the organ becomes converted into a huge retention cyst.

If the contents of this cyst be merely the secretion of the uterine mucous glands without admixture of blood, the condition is one of hydrometra. If it consist of menstrual blood, a hæmatometra is formed. If micro-organisms gain access to the retained secretion, decomposition occurs; the fluid becomes purulent, and a pyometra is produced. Of these three conditions, hæmatometra is by far the most common and hydrometra the most rare.

I have had under observation six cases—four of hæmatometra and two of pyometra. I have not yet met with a case of hydrometra.

No two of these cases were precisely alike. A brief notice of each may therefore be instructive, as illustrating different types of the lesion.

Case 1.—This was a married woman aged 38 years. She came to me suffering from epithelioma of the cervix. I admitted her into hospital, performed supra-vaginal amputation of the cervix, using Paquelin's cautery knife to divide the uterine tissues. She made a good recovery from the operation, and I saw nothing of her for nearly six months. She then came complaining of dreadful colicky pelvic pains, and that "she could not pass her courses." On examination I found the cervix completely occluded by cicatricial contraction, and the fundus distended with retained menstrual blood. With some difficulty I reopened and dilated the closed cervical canal and evacuated several ounces of tarry blood. She now menstruates regularly every month, although still with a good deal of pain.

It would, I think, have been better had I performed vaginal hysterectomy in the first instance, instead of amputation of the cervix.

Case 2.—This patient was single, and aged 24 years, when she consulted me in September, 1894. She came complaining of severe pain in the left lower abdomen, worse at monthly intervals corresponding to the menstrual periods. Every four weeks she was "unwell" for two or three days, but the discharge was extremely scanty and almost serous On examination the cervix was completely occluded, not even admitting a probe. Above the vaginal roof the enlarged body of the uterus could be felt distended with fluid. It was about the size of a three months' pregnancy. Under chloroform I dissected up through the occluded vaginal roof until I reached the distended uterus. This was freely incised, and a quantity of thick, chocolate-coloured, but perfectly sweet, blood escaped The mucous membrane of the uterus was then drawn down and sewn to that of the vagina. The uterine cavity was washed out with iodine water, and an iodoform gauze drain inserted She made an excellent recovery, and her periods became normal in every way, occurring every four weeks, lasting four days, the flow being moderate in quantity, natural in appearance, and the patient quite free from pain. In January, 1895, she married, and in May, 1895, she became pregnant. I last saw her in

December, 1895, and she was then seven months pregnant. The cervix was large, soft, and dilatable, the vagina long and capacious, and there was no trace of stricture in any part. In this case, although I failed to discover it, there was probably a minute channel leading from the uterus to the vagina, through which at each period some of the watery part of the menstrual discharge escaped. There were no signs of distension, inflammation, or adhesion of the Fallopian tubes.

Case 3.—This patient was a very delicate anæmic girl aged 17. She had never menstruated. For twelve months she had had a slowly increasing tumour in the abdomen. She had constant pain in this swelling, but every four weeks this pain became much worse and colicky in character. She was getting thinner, had night sweats, but no cough. Both breasts were enlarged, the areolæ darkened and the tubercles prominent. No fluid could however be expressed from the breasts.

Rising out of the pelvis, filling the lower half of the abdomen, and reaching to the umbilicus was a tense oval elastic swelling closely resembling a six months' pregnancy. It contracted intermittently. On auscultation, a bruit could be heard on either side. On each side of the swelling the Fallopian tube could be very distinctly palpated, as a large coiled sausage shaped tumour, nearly as large as the closed fist. Per vaginam the vagina was found to be a mere cul-de-sac which ended blindly one inch above the hymen. No trace of a cervix could be detected, but the lower pole of the abdominal tumour could be felt obscurely high up in the pelvis. On rectal examination this latter could be palpated much more easily and fluctuation detected. With a finger in the rectum and a sound in the bladder it was evident that, above the vagina and below the swelling, the bladder and rectum came into close contact. The case was evidently one of atresia of the cervix and upper three fourths of the vagina, with secondary hæmatometra and distension of both Fallopian tubes.

I admitted her into the Women's Hospital on May 23rd, 1895, and, under chloroform, incised the vaginal roof, and

dissected up between the rectum and bladder for about two inches. I then came to the wall of the distended uterus which I incised freely, evacuating over a quart of thick treacly, but perfectly sweet blood. I washed out the cavity with a solution of lysol, sewed the uterine to the vaginal mucous membrane, and packed both the vagina and the uterus with iodoform gauze. This was removed at the end of forty-eight hours, and the genital canal was afterwards douched night and morning with iodine water. After emptying the uterus, it contracted and shrank into the pelvis. The distended Fallopian tubes remained in the abdomen just above the brim of the pelvis. They continued swollen, tense and tender. For about a week the patient's general condition was satisfactory, and throughout the discharge from the uterus remained perfectly sweet. At the end of the week the Fallopian tubes became more painful and more swollen, and she developed septic symptoms. Peritonitis then rapidly supervened and it was evident that her only chance lay in abdominal section. On June 8th I opened the abdomen and found both Fallopian tubes greatly distended with thick, green, very fœtid pus. I removed both uterine appendages. They were densely adherent to large and small intestine, and their removal was extremely difficult. The left tube burst during the process of separation, and fouled the peritoneum with septic pus. I irrigated and drained the abdomen, but the patient died of peritonitis forty-two hours after the operation.

This case was a most instructive one, and raised several interesting questions. When I first saw her—before the first operation—both the uterus and Fallopian tubes were distended with fluid. Was the fluid in the tubes merely aseptic blood or was it purulent even then? Were the Fallopian tubes distended by a back flow from the uterus? Ought I not to have opened the abdomen and removed the tubes at the same time that I evacuated the uterus?

From the general appearance of the distended tubes, from the character of their contents, and from the density of their

adhesions to surrounding organs, I was forced to the conclusion that I was dealing with an *old* double pyosalpinx of many months' standing. Originally the tubes had undoubtedly been distended with aseptic blood (double hæmatosalpinx). This blood had become infected and converted into pus. Whence came the infection? I believe through the adherent bowel wall. As long as the tubes were not disturbed all went well. But when the uterus was emptied it retracted into the pelvis, dragged on the tubes and caused some leaking of their purulent contents into the peritoneum, lighting up an acute peritonitis.

Had I to deal with this case over again, I should open the abdomen (immediately I had opened the uterus from the vagina) and remove the appendages.

Case 4.—This patient was single, aged 19. Like the preceding patient she was delicate and anæmic. She had a history of severe pelvic pain, with monthly exacerbations. On examination I found an occluded cervix, moderate distension of the body of the uterus with menstrual fluid, and in addition, distension of both Fallopian tubes. I admitted her into my private hospital, and on December 12th, 1895, I attempted to reach the uterus per vaginam, but failed. I then opened the abdomen. I found both the Fallopian tubes distended with thick pus and the uterus moderately distended with blood. I performed total extirpation of the uterus and both ovaries and tubes (panhysterectomy). The patient suffered from marked shock after the operation, but rallied well and made a very satisfactory recovery.

This case is instructive and should be compared with Case 3, which it somewhat resembles. It should be observed that whilst the uterus was distended with blood, the tubes were distended with pus.

I now pass to the consideration of pyometra. This is nearly always secondary to the condition of hæmatometra, micro-organisms gaining access to the blood, causing its putrefaction and conversion into pus. From the great danger of the septic inflammation spreading through the tubes into the peritoneum,

and from the equally great risk of general septic poisoning, these cases are most anxious ones. The two following are the only cases of pyometra that have passed under my notice.

Case 5.—This patient was single, and aged 26 years. She had a history of scanty and very painful menstruation and a profuse greenish purulent discharge. Finally, for some months her menstruation ceased altogether, the pelvic pains increased in severity, and she developed febrile symptoms.

On examination, the cervix was small, and presented no trace of an external os. On either side of the uterus was felt what was taken to be a distended Fallopian tube—a pyosalpinx. Her abdomen was opened by one of my colleagues, and it was then evident that the condition was one of a bicornuous uterus distended with fluid, the two horns being the structures which had simulated distended Fallopian tubes. The uterus was opened per vaginam, and a large quantity of stinking pus evacuated. A drainage-tube was passed up through the vagina into the uterus. On introducing the forefinger through the cervix, one could easily feel the uterine cavity branching like the letter Y into two distinct horns.

The patient made an excellent recovery from the operation, and she had no recurrence of her old trouble.

Case 6.—This patient, married, aged 40 years, came under my care in April, 1895. She had had two children and several miscarriages. During her last miscarriage it was noticed that there was a hard globular tumour to the right of the uterus. After the miscarriage she developed a subacute septicæmia, which recurred in repeated attacks. These attacks were characteristic. Before each febrile onset the pelvic tumour enlarged, became hard and tender, and pushed the uterus over to the left side of the pelvis. The attack was marked by pelvic pain, rigors, high fever, sweating, and sometimes vomiting. It culminated in a copious discharge of very fœtid pus which poured out of the cervix. After the discharge of this pus the pelvic tumour became smaller, and the septic symptoms for a time subsided. In fact she only enjoyed good health as long as fœtid pus came freely away.

On examination there was felt to the right of the uterus a tense thick-walled cystic swelling, about the size of a cocoanut, quite fixed by inflammatory adhesions. The uterine cavity curved to the left side, the tumour bulging markedly into it. On pressing the mass from above pus could be made to run out of the external os. Under an anæsthetic I made an incision in the vaginal roof to the right of the external os, and laid the tumour freely open into the vagina, evacuating many ounces of very offensive pus. On passing the sound into the uterus and on making a bimanual examination (with a finger of one hand introduced into the abscess cavity and the other hand above the pubes) it was evident that I was dealing with a case of double or septate uterus, the left half of which was patent and the right occluded and distended with pus. Between the two cavities a thin muscular septum intervened. With scissors I divided the lower half of this septum. I washed out the suppurating cavity with iodine water and packed it with iodoform gauze. The gauze was removed at the end of forty-eight hours and a rubber drainage tube inserted. The patient made a good recovery from the operation. For two or three months I kept the opening patent with a small rubber drainage tube; and as long as this was *in situ* she enjoyed excellent health. I then ventured to dispense with it, but found that the opening I had made quickly contracted and she got a mild recurrence of the old trouble. I have twice had to dilate the opening and re-insert the rubber tube. At present her cervix presents a curious appearance. There is a right and left os (one going to either half of the double uterus) separated by the lower edge of the septum. In fact it is somewhat like the muzzle of a double-barrelled gun.

Remarks.—In all the cases the essential cause was occlusion of the cervix, congenital or acquired. Case 1 was an excellent example of the acquired form, and Case 3 of the congenital form. In Cases 2, 4, and 5 there was evidently very marked cervical stenosis of long standing, but not complete occlusion until a few months before operation. In two cases there

was not only occlusion of the cervix, but more or less reduplication of the uterine cavity; in Case 5 the uterus was bicornuous; in Case 6 it was double. It is also worthy of note that in both these cases the condition was one of pyometra. In two cases (3 and 4) the uterus was distended with blood (hæmatometra), and both Fallopian tubes with pus (pyosalpinx). In both cases I had reason to believe that the infection of the tubes did not take place from the uterus but from the bowel adherent to the tubes.

If, in a case of hæmatometra or pyometra, we find the Fallopian tubes distended, the prognosis is much graver. If the tubes be distended, I think the abdomen should be opened and the tubes (and in some cases also the entire uterus) removed. In some cases of hæmatometra the upper half of the vagina is absent, and the bladder and rectum come into contact between the vagina and the uterus. In dissecting up from the vagina to the uterus very great care is required not to wound either bladder or rectum

Another important point is, after freely incising the distended uterus and evacuating the viscid blood, to sew the uterine mucous membrane to the vaginal mucous membrane. Otherwise there is a great tendency for the opening to contract. Whenever there is this tendency to contraction a flanged rubber tube (a rubber tracheotomy tube answers perfectly) should be constantly worn.

I am well aware that my experience of these rare conditions is but a limited one, and that there are many varieties of hæmato-, pyo-, and hydro-metra that I have not yet seen. I trust however that the few cases I have narrated may be of interest.

A REVIEW OF SOME OF THE WORK DONE ON THE THYROID.*

BY. W P. NICOL, M.R.C.S, L.R.C.P.

THE prominent part played by the thyroid gland during the last few years renders it unnecessary in a short paper to dwell on its relational or minute anatomy. One or two facts about it, however, do call for remark, because they are in themselves full of suggestion.

The first of these facts is the blood supply. The arteries of the thyroid, four in number, spring directly from very large trunks where the blood pressure is very high. Roughly speaking, these four vessels have a combined sectional area of 37 sq. mm. (Quain), which, in order to appreciate the suggestion, we may compare to the sectional area of the renal arteries, which is 54 sq. mm. Further, while the two kidneys weigh on an average 10 oz., the thyroid weighs only from 1–2 oz. The large blood supply of the kidneys is no longer a matter for surprise, so well is its reason understood. On the one hand, there is a small bulk of gland tissue, and on the other, the large volume of the blood; and what is wanted is the constant action of the gland on the blood. This want is supplied by the nature of the kidney circulation, and it seems only fair in the case of the thyroid, a gland with a relatively larger blood supply, to suggest a similar reason.

The second fact is one connected with the minute anatomy of the gland—namely, the distribution of the capillaries. No one who has studied a section of the thyroid under the microscope can have failed to notice the very close relation between the capillaries and the glandular epithelium. So intimate, indeed, is the relation, that in places the capillary loops project between the lining epithelial cells. These two facts alone prove

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in no questionable manner that the thyroid is eminently well adapted for a rapid interchange of materials with the blood.

Turning now to a short history of the work done during the last forty years, we find that in 1856 Schiff observed that total extirpation of the thyroid in dogs was always fatal. Many years later, Kocher published a list of 24 cases in the human subject, in 18 of which symptoms closely allied to those of myxœdema were observed. This, the recognition of some connection between complete thyroidectomy and myxœdema was a distinct advance. It was found that the symptoms following the operation consisted in (1) a special alteration in the skin and subcutaneous tissues, (2) a peculiar condition of the nervous system, and (3) a very marked cachexia.

Evidence now poured in from all quarters to show that these symptoms depended exclusively, both in the case of spontaneous myxœdema and in that of total extirpation, on destruction of the function of the gland. Numerous experiments were performed on animals—monkeys, dogs, cats, rabbits, and many others—and it was found that while in some, removal of the gland always caused the symptoms mentioned above, in others it failed to do so. This, at first sight, seemed likely to cast doubt on the new theory; but it was soon shown that in those animals in which symptoms failed to appear there were present accessory thyroid glands, on removal of which, symptoms soon came on. This apparent error, then, served only to make the original idea less questionable, and we are now, thanks especially to the work done by Victor Horsley, in a position to say that those symptoms which appear both in animals and man as the result of extirpation of the thyroid, are of the same nature as those seen in myxœdema. Thus far, experiments proved that the part played by the thyroid in our economy was no small one; but there still remains the question as to what the nature of its function may be. Two ways of attempting the answer suggest themselves—first, a study of the phenomena of the disease myxœdema, and secondly, a study of recent experiments.

Writing as a student for a society of students, I shall not

hesitate to refer briefly to the symptoms of myxœdema. These symptoms may be divided into three classes:—1. The well-known alterations in the skin and areolar tissue. 2. The cerebral and spinal symptoms. The patient with myxœdema is slow in thought and in memory; his acuteness of perception is dulled; he is in a state of hebetude; his general tone is one of sadness, and his speech is slow and monotonous. Rarely do we find cases in which excitement, delirium, and hallucinations are present. 3. The state of cachexia and its symptoms. In this the patient is markedly anæmic, and suffers much from a feeling of cold; the body temperature is lowered; the urine is diminished; neuralgia and muscular spasms are present in some cases. The course is slow, and the end is death. In the post-operative or artificial form of myxœdema we may notice two points of additional importance—one, the more rapid course of the disease to a fatal end; the other, the prominence of muscular twitchings and spasms.

So much for symptoms. We have still, however, the morbid anatomy to consider; and here at present we meet with disappointment. Lesions have been found in many organs—in the ovaries, in the testes, in the kidneys and central nervous system, but nothing very definite, constant, or capable of clear interpretation. Examination of the bones, however, is more hopeful, and from it we learn that in all cases when the body is still growing, we get stunting of bone growth. This stunting, moreover, is not due to premature ossification, but to a retardation of that process. The enlargement of the pituitary body, often found, may be regarded as an attempt on the part of that body to take on the lost function of the thyroid.

As regards the chemical side of the question, our authority is Dr. Halliburton. He has made examinations of the various tissues of myxœdematous patients, and he finds that in the case of the skin, the excess of mucin is not greater than can be accounted for by the overgrowth of tissue. His general conclusion is that such slight excess of mucin as may be found in many cases is not pathognomonic of the disease, since such excess is often found in persons not suffering from it.

The conclusions to be drawn from all these facts are not very clear, but it may be taken that the evidence points to the central nervous system as the chief sufferer in myxœdema, and that a theory which claims a close relation between the healthy thyroid and the nervous system is justifiable.

At the outset of this paper attention was drawn to the very large blood supply of the organ and the very close relation between the capillaries and the cells of the alveoli, two qualities that form the distinguishing features of a gland such as the kidney or pancreas. The thyroid however is ductless and cannot, like the pancreas, pour its products onto a free surface; it has in fact lost this part of its function which it must certainly once have possessed.

We now know that this outward and visible function of a gland does not in all cases constitute its only function. The production of bile is but a minor part of the liver's work. The pancreas does not only pour its digestive juices into the intestine, it gives something more than waste products to the blood flowing through it. In fact all these organs furnish us with instances of what is called "internal secretion," and the thyroid would seem to be a gland that has lost its external function and displays that of "internal secretion" in its purest form.

What then is the nature of this "internal secretion"? Two views present themselves. The first is, that the gland in some way modifies certain bodies in the blood brought to it, which bodies in the absence of its influence accumulate in the blood and produce a harmful effect on the nervous system. The second is, that the gland gives to the blood some body necessary for the maintenance of the central nervous system in a healthy state. In following out the train of experiments it will be seen that the weight of evidence is in favour of the second theory.

Having in view the fact that myxœdema is the outcome of loss of function of the thyroid, the next step was to seek some means of replacing that loss.

The first experiment was that of thyroid grafting. It was thought that if a piece of healthy gland from another source

could be successfully grafted into an animal or person whose gland had been removed, the symptoms of myxœdema would disappear. This brilliant idea met with success, but the success was only partial. As an instance, a cat was taken and one half of its thyroid removed and placed in the abdominal wall. When it was thought that this graft had had time to establish itself, the other half of the thyroid was removed, and the cat continued in the full enjoyment of health. Later still the graft was removed from the abdomen and the animal soon died with all the symptoms that follow total thyroidectomy. After this experiments were done on the human subject, of which the following may serve as an example. A woman suffering from myxœdema had a piece of sheep's thyroid grafted in her abdominal cavity. For three months after this her symptoms were absent, but as they then showed signs of returning a second grafting was done, and again the symptoms disappeared only to return at the end of a year. At the second operation the first graft was found to be completely atrophied. These results, though brilliant, were far from satisfactory. One most remarkable thing about the method was the extraordinary rapidity of its action. In one case a woman who, before operation, lay in her bed in a state of stupor regardless of her surroundings, three hours after it, was attentive to questions and displayed unusual intelligence. The amount of urine ran up from 29 to 41 oz., and her melancholia disappeared in a few days.

It is obvious that in such cases the graft had not had time to vascularize, and this at once raised the questions—Why is the graft only of temporary benefit? How does it act? To find the answer we must turn to the second of the theories above mentioned. The amelioration of symptoms was due to the absorption of the theoretical body, which we may call the thyroid juice. The temporary benefit was due to the merely temporary supply for, as was seen, the grafts atrophy.

The next step was the substitution for grafting by the method of hypodermic injection, into the details of which it is unneces-

sary to go. It is enough to know that injections of thyroid extract were used; that intravenous injection was the most efficacious; that the dose was of great importance; and that extracts filtered through porcelain were not of much value.

Much attention has been given to the examination of this extract, but the results are unsatisfactory. The active principle has not been isolated; some day it may be found, but for the present we must rest content in the knowledge of its presence and activity.

The hypodermic method had its drawbacks, and unless great care and considerable skill were used, unpleasant results not infrequently followed. This method however is no longer in use and has been replaced by that of feeding patients on thyroid glands. It is quite unnecessary to describe the results obtained. The medical journals during the last few years have recorded case after case of myxœdema treated thus with complete success.

A few points of detail, however, do call for special remark. The first question, and one of great importance, is what animal's thyroid is the most suitable. A good deal of attention has been paid to this, especially in Paris, with the result that preference is given to the sheep. Among the reasons for this is the fact that, unlike that of the ox and many other animals, the sheep's thyroid is very little liable to disease, and is especially immune from tubercle. The second question is how should the gland be taken. The answer to this is, if possible, fresh. Lastly, the dose. Here we may divide the treatment into two stages—*(a)* the stage of active treatment, *(b)* that of continued treatment. During the first stage one gland is given every day for four days, and then one lobe every two or three days, the treatment being at once stopped if untoward symptoms appear. During the second stage one or half a lobe is to be taken every five days to keep in health.

Had this been the only outcome of years of work we might well look upon it as a triumph not the least brilliant of these times. But this is not all. The work has furnished us with a treatment for diseases other than myxœdema, of which men-

tion will be made, and has opened up a large field for research with promise of great results.

To refer briefly to the treatment of other diseases. Our thoughts turn at once to the subjects of cretinism, of Graves' disease, to those who have suffered total removal of the gland—*e.g.*, for malignant disease—and less obviously to acromegaly and some skin diseases.

Cretinism is usually described as presenting two forms—the atrophic form and the myxœdematous. The latter of these we may at once say is now proved to be merely an infantile form of myxœdema, and as such is amenable to thyroid treatment. The atrophic form, however, is not so easily dismissed, for we find in some cases an atrophy or absence of the thyroid, and in others a hypertrophy. There is, at any rate, agreement on this point that there is some close connection between cretinism and alterations in the thyroid; and there is no reason why in hypertrophy, just as much as in atrophy, we should not get a suppression of function.

Turning to experiments on animals, we find that it has been shown that removal of the thyroid in some animals produces the pure form of cretinism, while in others merely the myxœdematous form. These experiments are so interesting that I shall briefly describe them.

The first series was on young dogs eleven days old. Two or three were selected from the same litter. Thyroidectomy was performed, and death followed in two days with entire absence of fibrillary twitchings and convulsions.

The second experiment was on a young pig a month old, the finest of the family. Here, after thyroidectomy, the pig became myxœdematous and its growth practically ceased, so that in a short time it was the smallest of them all.

The third case was that of a kid ten days old. After thyroidectomy no immediate symptoms appeared. The animal took its food well, and yet many months later it still had the size and appearance of a kid four or five weeks old. There was no myxœdema, and this was a case of pure cretinism.

The conclusions that have been drawn from these experiments are that the function of the gland differs in some respects in old and very young animals; that extirpation in the young arrests growth; and that different animals react differently to thyroidectomy. We should, then, expect the thyroid treatment to do good in cases of cretinism, and in this we have not been disappointed. As regards acromegaly and skin diseases, I simply draw attention to the fact that they are fit subjects for the trial of this treatment.

The last part of this paper I devote to the consideration of Graves' disease. Here the satisfaction to be gained is nothing like so great, the subject is still involved in mystery, and only the general lines on which the disease is being investigated can be indicated. In the first place it seems we are confronted with several rival theories, each claiming to give us the real explanation of the malady. They are as follows :—

(1) Graves' disease is one that has its origin in the central nervous system and is analogous to Hysteria and Epilepsy. (2) Graves' disease is dependent on some lesion of the medulla (3) Graves' disease is due to the action of poisonous bodies on the nervous system, these bodies being determined by altered thyroid function. (4) The disease is due to the accumulation of the thyroid juice in the body. This is the hypersecretion theory. Having in view what was said above about internal secretion, and before discussing at all these various theories, it may be useful to call to our aid the little that is known of the relation between the pancreas and diabetes. It has been proved by experiments on animals that complete removal of the pancreas causes glycosuria, while the successful grafting of another pancreas in the abdomen of an animal prior to the removal of its own organ prevents the appearance of sugar in the urine. Further, these experiments have been conducted so as to prove that this glycosuria is due to the absence of something which the pancreas gives to the blood passing through it, in fact to suppression of its internal secretion. No one would from this venture to conclude that this is the sole

cause of glycosuria. In fact we know that such is not the case; we know, for instance, that injuries to the medulla will produce it, and we have several clinical varieties of diabetes. Just then as we have varieties of diabetes so we have varieties of Graves' disease and may divide cases into four classes.

1. Cases in which we have an ordinary pre-existing goître, a condition which we may look upon as predisposing to disease of the gland. There is no doubt of the existence of such cases, and the development of Graves' disease has had its origin in the attempted treatment of such goître by Iodides or the injection of the Tincture of Iodine.

2. Cases which we may describe as reflex. There are several recorded cases where disease of the nasal mucous membrane has been the cause of Graves, cure of that disease following cure of the nasal condition. Such a case was to be seen some time ago in the out-patient room of Queen's Hospital under Dr. Kauffmann.

3. This class includes a considerable number in which some severe shock, fright, or grief has been followed by Graves.

4. That class of typical cases where the disease comes on without any apparent cause and in which the goître is the first symptom that attracts the patient's notice.

Now that we have got some definite understanding as to the position, we may proceed to the investigation. First of all, we have a good deal of evidence derived from the first part of this paper—namely, the treatment of myxœdema. It has been noticed by many observers that during the treatment of such cases by the thyroid juice, many and varied symptoms of a disagreeable nature have been produced. That these symptoms could only be due to an overdose of the juice is clear, since they always disappeared when the treatment was temporarily stopped. To enumerate these symptoms, we find nausea, fainting, headache, neuralgia, skin eruptions, loss of strength, deafness, insomnia, raised temperature, tachycardia, and polyuria. The idea was tempting. These symptoms are the very symptoms of Graves' disease, which therefore must be due to the

over-secretion of the thyroid gland. Further support has been claimed for this view from the beneficial results of operative treatment, but this, as we shall see, is equally applicable to another theory. Still further support has been claimed from a comparison between the leading features of Graves and myxœdema, a comparison which, if it serve no other purpose, is at any rate useful in impressing the symptoms on us students. In myxœdema we have atrophied thyroid, absence of sweat and sebum, a feeling of chilliness, lowered temperature, thick skin, slow pulse, metrorrhagia, sluggish mind. In Graves we have goître, sweats, feeling of warmth, raised temperature, rapid pulse, amenorrhœa, mental excitement. Against the claims of such a comparison, we have the fact that in artificial myxœdema we get muscular and respiratory phenomena just like those of Graves. Lastly, in connection with this theory we may take it that if it be the correct one, then the thyroid treatment ought to aggravate the symptoms. The evidence on this point is useless; it goes both ways.

We may now consider the other theories. The first was that propounded by Charcot; and it is interesting to note that he considered the disease as analogous to hysteria and epilepsy. This opinion he based on the undoubted *rôle* played by heredity; on the nervous character of the symptoms, and the absence of lesions *post mortem*. We are now being taught that epilepsy is a toxic condition; that its symptoms are due to the action of some poison on the central nervous system. This being so, we may claim the same toxic origin for Graves, and we may look to the thyroid as the source of the toxines. In support of this theory may be mentioned an experiment in which toxines obtained from the urine of a patient suffering from Graves produced in animals symptoms identical with those of the patient.

Brissaud in some of his lectures maintains the theory that the three cardinal symptoms of Graves are an undoubted proof of implication of the medulla. This theory, he says, is supported by the occasional occurrence in Graves of such symptoms as

facial paralysis, ophthalmoplegia, glycosuria, and profuse sweats. He admits, however, that the cause may sometimes lie in the higher regions of the brain, but claims that in such cases they act through the medulla.

We know that poisons have a way of picking out certain parts of the nervous system. We have such an instance in strychnine. If, therefore, one feels in duty bound to hold some theory of Graves' disease, a combination of the central nervous system and the toxic theories would seem at present the most suitable. Only recently experiments have been performed on monkeys, in which cocaine has been injected with the production of eye symptoms as typical as those seen in a good case of Graves.

The last point we have to consider is the treatment. This we may divide into medical and surgical, and it is generally recognised that the latter method is not justifiable until the former has had a fair trial.

As regards the medical treatment it includes thyroid feeding, the use of certain drugs (of which belladonna has the best record), general tonic treatment, galvanism, and the cure of any reflex cause. The last method we have seen is successful in those cases where such a cause exists. As for the others, they have all done good in some cases, but can they be said to have cured the disease? We must always remember that a patient with Graves often has a remission of symptoms. Under this heading of medical treatment we may mention an interesting case taken from Brissaud's Lectures, in which the treatment, though surgical in intention, cannot be at any rate called operative. The case is one of a woman who was suffering from advanced Graves' disease. All other methods having failed, her consent to an operation was gained. She was anæsthetised, but no operation was performed. On regaining consciousness she was informed that the necessary operation had been done, and from that time the symptoms began to disappear, and she was eventually cured. Such a case reminded me of a very able paper read before this society on the "Action of Shock in

Disease." It seems not impossible that the shock in this case could have given a beneficial check to the perverted metabolism of the central nervous system.

As for operative treatment, we have two methods open. Either we may do a partial thyroidectomy or use the operation known to the French as exothyropexie. Both have as their object the diminution of the goître. The one effects this by actual removal of tissue, the other by the induction of atrophy.

I have found two lists of operations (partial thyroidectomy). In the first there are thirty-three cases in which it is claimed cure followed in nearly all. The second contains twenty-nine cases, with twenty-two complete cures, three improved symptoms, three failures, and one death.

A word now as to exothyropexie. The operation briefly consists in exposing the gland, partially freeing it, and finally fixing and leaving it between the lips of the open wound. This is followed in a week or so by more or less atrophy of the gland. The advantages of the operation are that it avoids the actual removal of any part of the gland; that it is safer and easier of performance; that it is quite as efficacious as partial excision. In a record of fourteen cases I find fourteen complete cures. This excludes one fatal case so peculiar in its nature that it seemed fair at least to the operator to put it in a class by itself, as one which, as the result showed, should not have been operated on.

Such a record as this surely justifies a trial of the operation. I have lately seen several cases of Graves' disease of a very distressing nature in which medicine having obviously failed even to relieve, I cannot but think an operation so well spoken of and so free from risk might be given a trial.

ADDENDUM TO NOTE ON EHRLICH'S DIAZO-REACTION.

(Published in the September number of this "Review.")

BY J. A. CODD, M.B., B.SC.

SINCE writing the paper published in the September No. of the *Review* I have had a series of cases of undoubted enteric fever that obstinately refused to give the reaction, and after investigating the cause I found that the stock Ehrlich *A* solution had been made for more than a month, and had been kept in a corked bottle. A freshly prepared solution immediately gave the reaction.

It would seem, therefore, that Ehrlich's *A* solution, though capable of keeping a few weeks, yet after a month degenerates. It would therefore be safer not to allow the solution to be more than three weeks, or at most a month old, and it should be kept in a stoppered bottle. For those who would only be likely to use the test occasionally, tabloids of sulphanilic acid would be convenient, containing $\frac{5}{6}$ grain. If one of these and one of Ehrlich *B* tabloids were added to 100 ♏ of water, and 5 drops of strong HCl added, then an equal volume of urine and a few drops of ammonia, the necessity of frequently preparing the solutions would be avoided, and the reagent could be relied upon. By dissolving the tabloids directly in 100 ♏ of urine instead of water the intensity of the colour is deepened. For private practice a small case containing a mortar with 100 ♏ graduation mark, a glass rod, two small tubes containing Ehrlich *A* and *B* tabloids, and two small drop bottles containing strong hydrochloric acid and ammonia respectively might prove of great service.

REPORTS OF CASES.

A CASE OF LYMPHADENOMA WITH MARKED BRONZING OF THE SKIN.

BY WILLIAM COLLIER, M.A., M.D.
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THE patient, a girl aged 14, was sent home from school for sore throat and enlarged tonsils. Her family doctor found that in addition to the enlarged tonsils the glands on both sides of the neck were enlarged, and also those in the axillæ and in both groins. The spleen was greatly swollen, reaching almost to the crest of the ilium. The evening temperature for some days had reached 102 degrees. The patient had been troubled with severe sweats and increasing weakness. When seen by myself for the first time, on June 23, 1895, I could only confirm my friend's diagnosis of lymphadenoma. A careful examination of the chest at this date did not lead me to suspect any marked enlargement of the posterior mediastinal glands. Three months later, when I saw her for a second time, I was surprised to find that she had developed quite the appearance of a patient in an advanced stage of Addison's disease. The bronzing of the skin was very general over the trunk, particularly marked in the region of the axillæ. Scattered pigment spots had also appeared, especially over the legs and arms. My friend informed me that these changes in the skin had been first noticed about a fortnight previously, and had developed very rapidly. On examining the chest at a point opposite the base of the spine of the right scapula, the breath sound was distinctly stridulous in character, and lower down, near the base of the right lung, the air entry was markedly diminished, signs which pointed to enlargement of the posterior mediastinal glands. Urine from time to time contained a little albumen; the blood showed a

distinct diminution in its red corpuscles. The disease had evidently made considerable progress. Two and a half months later the patient died. A few days before death it was observed that the glands were markedly diminishing in size.

Remarks.—This case exhibited two points of special interest. The tonsils, which were noticed to be enlarged when at school, continued in much the same condition throughout her six months' illness. On examination on June 23, they almost met in the middle line, and on investigation with the finger had a hard resisting feel, so much so that at the time of my examination I believed they were undergoing the same changes as the glands in the neck and axillæ.

Unfortunately no *post mortem* was allowed, otherwise it would have been exceedingly interesting to have ascertained whether any enlarged abdominal glands pressed upon or in any way interfered with the solar plexus and the nerves going to the adrenals, as was the case in a patient suffering from lymphadenoma as reported on by Dr. Gowers, who during life exhibited a discolouration of the skin having the distribution of Addison's disease, notwithstanding that the adrenals were found to be healthy.

DOUBLE PNEUMONIA; DOUBLE EMPYEMA; RECOVERY.

BY WILLIAM COLLIER, M.A., M.D.
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On October 25th, 1894, the patient, a delicate youth of 18 (who has spent three winters abroad on account of ill health) was overturned in his boat and got wet through; three days after symptoms of pleurisy involving the left base were present, and a little later well-marked congestion of the left lung supervened. On November 5th the mischief had spread to the opposite lung, and unmistakable evidence of active congestion

of the right base existed. By November 16th the physical signs pointed to the existence of a considerable amount of fluid in both pleuræ, more especially the left. The following day an aspirating needle was introduced into the left pleura, and about an ounce of sweet pus was removed. On the 18th A. C. E. was given and a free incision made into the left pleura; between 30 and 40 ounces of pus were removed, and a large drainage tube introduced. Before this operation, while under the anæsthetic, an aspirating needle was passed into the right pleura and one or two ounces of sweet pus drawn off.

After consultation we decided not to interfere with the right pleura at present. Three days later the patient's general condition had improved in a remarkable manner, he was breathing quietly and without distress, and looked and expressed himself in every way much better.

On November 25th, a week after the first operation, it was decided to attack the right pleura. It was evident that the left lung was now doing almost all the work; the heart, which had been slightly pushed over to the right side, had now almost returned to its normal position, and good breathing could be heard over the greater portion of the lung. On the right side anterior aspect, percussion note was impaired from the clavicle downwards, over lower two-thirds absolute dulness supervened. Posteriorly absolute dulness present over lower two-thirds of chest, upper third resonant, and over this area loud bronchial breathing could be heard.

A. C. E was given, and an opening carefully made into the pleura, the object being to let out the pus slowly, no attempt being made to completely evacuate the pleura; a drainage tube was introduced, and partly plugged, in order that the pus might slowly drain away. After the operation loud cavernous breathing could be heard over the apex of the lung, showing that it had not expanded. Without going into details, I may say that from this time forward the patient made a gradual and complete recovery, due in a large measure, as I believe, to the infinite care, patience, and attention to detail bestowed on him by the

doctor under whose care he was. Eventually both tubes were removed and the wounds closed, the lungs expanding well, leaving little evidence of the severe nature of his illness. At the commencement of the present year he was indulging in all the ordinary athletic exercises of youth.

With the lungs so badly damaged, and both pleura fairly distended with fluid, one was a little apprehensive as to how he would bear an anæsthetic. On both occasions he took the anæsthetic remarkably well, the breathing and pulse continuing good throughout its administration. The case seems worth recording, as instances of double empyema are far from common, and do not, I think, generally terminate in so satisfactory a manner as the present one.

CASE OF IMPACTED GALLSTONE.

BY F. N. NASON, M.B., NUNEATON.

LATE in the autumn of 1891, H. M., a married woman, aged 40, began to suffer from pain in the right side, which was referred to the region of the gall-bladder. At first the attacks subsided under simple treatment, though they tended to recur more and more frequently. Early in 1892 the pain ceased to disappear completely in the intervals between the attacks, and there was some permanent slight jaundice. The woman, who was very stout, began also to lose flesh. During this time nothing could be felt in the region of the gall-bladder, though there was marked tenderness there, and the pain was always referred to that neighbourhood. Exploratory operation was advised as the question arose as to the possibility of malignant disease. To this however the patient would not consent. Her condition gradually became worse, jaundice more marked, and pain more constant. During this time no gallstone was ever found in the motions though instructions were given to look out for one.

In July she consented to go into the General Hospital, Birmingham, where she was under the care of Dr. Short.

At Dr Short's request Mr. Chavasse opened the gall-bladder, but no gallstones were found either in the gall-bladder or impacted in the cystic duct. A probe was passed down the latter, but no obstruction felt. The gall-bladder itself was distended with a clear mucoid fluid in which no trace of bile could be found. The woman made a good recovery as far as the operation was concerned, but still had the same attacks of pain. As soon as the wound had completely healed, which it did very readily and without any biliary fistula, the patient returned home and again came under my care. A few days later she was seized with most violent pain of the same character as before only much more severe, and when I saw her was collapsed, with much cyanosis, cold clammy hands, and imperceptible pulse. I gave brandy and morphia freely and she rallied after an hour or so. A similar attack, only still more severe (the most pronounced condition of collapse short of death I have ever seen) occurred two days later, but this again gave way to brandy and morphia. A few hours later she passed into the chamber, unaccompanied by any motion, a mulberry-shaped non-facetted single gallstone the size of a large pea. From that time she never had any more attacks of pain, the jaundice subsided, and she was soon in robust health, and I may add, the next year became pregnant.

The small gallstone, which had evidently been the cause of all her trouble, had apparently become impacted at the junction of the cystic duct with the hepatic duct, and had not only prevented any bile reaching the gall-bladder, but had also interfered with the flow of bile into the common bile duct.

A CASE OF SIMULATED MITRAL STENOSIS.

BY O. J. KAUFFMANN, M.D. LOND., M.R.C.P.

T. A., male, 57, was admitted to hospital with some general anasarca and dyspnœa on exertion, and some cyanosis of the extremities. The heart beat frequently and irregularly, and was enlarged as regarded the right side, there being marked epigastric pulsation; the apex beat was diffused, but the point of the heart not displaced, and the area of cardiac dulness not appreciably enlarged to the left or to the right, which was accounted for by emphysema of the front edges of the lungs. The first heart-sound at the mitral area was very short and sharp in character and of high pitch, and the second sound at the same area was reduplicated. The second sound at the pulmonary area was not accentuated, and at the aortic area the sounds presented no departure from the normal. There were no murmurs.

The lungs presented signs of emphysema in front, with œdema of the bases, and there was some muco-purulent expectoration free from blood. The liver was enlarged to a moderate degree, not merely depressed by the emphysema.

When admitted the patient was not very ill, but early next morning he was suddenly seized with great dyspnœa, coldness of the extremities, small pulse, which was not, however, more irregular than on admittance, and quickly became collapsed, and died in four hours without losing consciousness. There was no pain, cough, or hæmoptysis during the agony.

Autopsy.—The lungs were found extremely œdematous at their lower parts but otherwise free from disease, excepting some old adhesions at the right base and anterior marginal compensatory emphysema. The organs were throughout air-containing. The kidneys presented early fibrous changes, limited to the outer parts of the cortices and the capsules. The spleen was enlarged and somewhat harder than normal, and showed those appearnces which are associate d with chronic

hyperæmia. The liver was moderately enlarged, considerably hardened, and presented characteristic nutmeg changes.

As regards the heart, it was covered to some extent by the emphysema of the anterior edges of the lungs. The right ventricle was much enlarged in capacity, and the walls were thickened to some degree. It reached to, and formed part of, the apex of the organ. The right and left auricles were both considerably enlarged in capacity. But the left ventricle presented no appreciable change of size; it was, perhaps, a little dilated and hypertrophied; but so little was this the case that no positive statement upon the point is possible. The mitral valve was entirely free from disease, and presented no narrowing whatever; neither was the orifice widened. The other valves were perfectly healthy. The myocardium showed considerable degenerative changes, both to the naked eye and under microscopic examination. The latter showed that the muscular walls of each cavity were degenerated to a considerable extent, but to a markedly greater degree in the case of the auricles than in that of the ventricles; and again, the walls of the right ventricle were degenerated in an appreciably greater degree than those of the left.

The question arising in this case was, how to explain the occurrence of physical signs of mitral stenosis in the absence of such lesion.

As regards the signs quoted—namely, a short, sharp, and high-pitched first sound coupled with reduplication of the second sound—they are hardly to be considered as absolutely pathognomonic of mitral stenosis. But they are so frequently encountered as the only evidence of that lesion, even during observations extending over considerable periods, that they may be considered fairly characteristic signs of narrowing of the mitral valve. They may occur thus combined, apart from mitral stenosis, in cases of dilation of the left ventricle with greatly increased systemic blood-pressure. But that that is not the explanation in the present case is shown by the absence of enlargement of the left ventricle. Moreover, there is the sur-

prising agreement of the relative enlargements of the several cardiac cavities in this case with the enlargements which occur consequently to true mitral stenosis.

However, it seems that in the case under consideration the disturbed heart-sounds can be explained by the relative degrees of dilation of the several cardiac cavities. That these dilated in consequence of muscular degeneration is plain, for there was no trace of valvular disease or pericarditis, and only very slight lung-disease, therefore the dilation cannot have resulted from excessive demand made on the right ventricle and the two auricles.

Now, allowing a state of degeneration of the myocardium, as described above, it is not surprising that the two auricles and the right ventricle should have yielded in greater degree than did the left ventricle; and in this condition of dilation the cavities must have held a larger quantity of blood than would have been their portion in a state of health. If now the ring of attachment of the mitral cusps did not give way, but maintained its proper size, each contraction of the left auricle would endeavour to force an abnormally large bulk of blood through the mitral orifice into the left ventricle, consequently there would be produced the mechanical features of a mitral stenosis, viz., a valvular opening, too narrow for the bulk of fluid which has to pass through it. Naturally, dilation of the left auricle alone would explain all the other features of this heart, since dilation of the right ventricle and its auricle would follow in due course if the ring of the mitral valve retained its proper size sufficiently long. But from the wide distribution of the microscopic features above mentioned, combined with the fact that the mitral ring would probably *not* resist for any considerable time, it appears more probable that the two auricles and the right ventricle dilated simultaneously. The yielding of the latter may possibly have been furthered by the pulmonary emphysema.

It thus appears that the physical signs in question were in this case the result of a comparative, or relative narrowing of the mitral orifice, relative that is to the increased size and capacity of the left auricle.

That such a condition might also produce a presystolic or a diastolic mitral murmur seems at least probable. It is not unlikely that a fair number of cases, seen once only and diagnosed with good reason as cases of mitral stenosis, may in reality be instances of relative narrowing of the mitral orifice, which would cease when the mitral ring gave way and allowed the much more usual mitral incompetence of purely muscular origin to occur.

When considering a case of "dilated heart," it is common to overlook the dilation of the auricles, as being an unimportant factor in the clinical picture. But it is not improbable that their dilation plays a really important part. Having much weaker walls than the ventricles, they will also have less recuperative power even when their nutrition is normal, a fact which we see constantly illustrated when the left auricle, though dilated in response to an increased demand for work, fails to hypertrophy appreciably.

In a similar manner, though in lesser degree, one observes the same difference between the right ventricle and the left ventricle. It may with truth be said that the right ventricle answers increased resistance by dilation, with comparatively slight hypertrophy; under similar conditions the left ventricle replies by a vigorous hypertrophy of its walls.

If these ratios of dilation are true in normal nutrition of the cardiac muscle, they will also hold true when its nutrition is impaired owing to an unhealthy blood-state, so long as there is no local interference with the blood supply to any one part of the muscle-walls as contrasted with other parts, and so long as no special demand is made on any one cavity to the exclusion of the others.

These conditions seem to apply in the present case, and consequently the left ventricle remained of normal size in contrast to the other chambers of the heart.

REVIEWS.

TEXT-BOOK OF HISTOLOGY.*

THIS work is a departure from the usual style of books on the subject, and will most certainly prove of great use to the student of physiology. The first two chapters give a short but practical account of the different methods used in histological work, and it does not in any way pretend to be more than an introduction to the subject, but at the same time the more important formulæ are included, and the account of some of the special staining methods is extremely clear. The work really begins at the third chapter with the description of simple tissues in which the blood, various forms of epithelium and connective tissues are described. The chief point about the book, and that which makes it to a large extent different from the ordinary text-book of histology, is the method of illustration. Each tissue is accompanied by a carefully executed coloured drawing opposite which is a reference description. There are altogether 88 plates, containing 174 coloured figures. The book, thus forms at once a text-book and an atlas, within the reach of every student. From the manner in which this system of illustration is carried out, the student can see at a glance all the points to be observed on examination of a microscopic section. This must lighten in a very great degree the difficulties which every one encounters at first until he becomes familiar with histological details. The majority of these illustrations are done with extreme care and are beautifully clear, bearing testimony to the artistic skill of the author, for with very few exceptions they are all his own. Some few only are lacking in finer detail. Although the book is essentially meant for the student, there are some subjects of which we should have expected a more extensive description. Thus the

*Text-Book of Histology. By Arthur Clarkson.

account of the blood is somewhat meagre, giving very little information concerning the various kinds of white corpuscles. This subject has been so carefully worked out within recent years that even the ordinary student is expected to show some knowledge of it. The same may be said of the chapter on the nervous system. In view of the surprising advances made in neuro-histology, it is rather disappointing to find the Golgi methods relegated to the very last page of the book where there is nothing beyond a mere description of the method. It may possibly be argued that these more advanced and intricate portions are not required in a work intended for students, but we cannot deny that had they been given as fully as other subjects, and especially if illustrated in the same manner. it would have added materially to the usefulness of the book. The letterpress description is very well arranged, consisting of short accounts of the tissues without any unnecessary detail, but so succinct and clearly expressed that a large amount of information is contained in a short space. Following each chapter is an appendix giving the methods of preparation necessary for the special tissues described in the chapter. In this way the work is eminently one for practical use in the laboratory, and forms an important contribution to histological literature; and we strongly recommend it to students.—D. S.

RHEUMATOID ARTHRITIS: ITS PATHOLOGY, MORBID ANATOMY, AND TREATMENT.*

DRS. Wohlmann and Bannatyne have observed in the synovial fluid taken from cases of rheumatoid arthritis a micro-organism which they consider specific. Dr. Blaxall, of the Brit. Inst. of Prev. Medicine, was requested to study its life history, and the report which he wrote appeared in the *Lancet* of April 25th of this year. Dr. Bannatyne's book on rheumatoid

* Rheumatoid Arthritis: its Pathology, Morbid Anatomy, and Treatment. By Gilbert A. Bannatyne, M.D. Glas., M.R.C.P. Ed. Bristol: John Wright and Co. 1896.

arthritis has been written round this report, and he has succeeded in giving a very good account of the malady. The section marked bacteriology is naturally the most interesting portion of the book, containing as it does the latest theories as to the causation of the disease. The micro-organism observed is a bacillus which exhibits very marked polar staining, and looks at first sight very like a diplococcus. Its average length is 2μ, and its average breadth $0{\cdot}6\mu$. The number found in the synovial fluid from the affected joints varies greatly, being large in acute conditions and small in chronic. In culture media the characteristics are striking. In beef broth it gives the appearance of gold-dust scattered through the fluid, but in agar-agar and serum its growth is almost invisible. Up to the present the original disease has not been produced by re-inoculation in animals, and it is possible that this may be due to a natural immunity. It will be seen that so far Koch's four postulates have not been satisfied, and we await with interest the corroboration of these investigations.

The chapter on symptoms has been too obviously written up to meet the micro-organism theory, and its divisions into (1) premonitory symptoms, (2) primary symptoms due to the direct effect of the micro-organisms, and (3) secondary symptoms due to the absorption of toxines elaborated by the micro-organisms, are ingenious if somewhat gratuitous. There is a final chapter on Morbus Coxæ Senilis, which the author considers a distinct disease.

Dr. Bannatyne has spoilt what might be a really readable account of rheumatoid arthritis by a marked want of lucidity in his writing. Portions of the book require to be completely rewritten, the sentences being obscure, and occasionally incorrect. The following is really rather funny :—"As an analgesic I always obtained success when applied externally, and for its other properties its other compounds are as active, and are so much more easily administered, and assimilated, when given by the mouth."

THE ENLARGED CIRRHOTIC LIVER.*

In these two short papers Dr. Foxwell draws attention to the clinical fact that a cirrhotic liver is enlarged before it ultimately contracts, so that if the patient dies before the contraction takes place, the liver may be found enlarged at the autopsy. The word cirrhosis is used by the author as a pathological term and not one of mere morbid anatomy. This however scarcely justifies him in including cases of enlarged liver associated with abdominal catarrh, gout, phthisis, syphilis, debility, etc., without some more definite description of the condition of the organ. Without autopsies it is impossible to say what was the condition in many of the cases included in his first paper which deals with the non-alcoholic form. The sum of this paper seems to be that livers which appear clinically to be enlarged may be found *post mortem* to be so actually, and some of them may be cirrhotic. The actual intention of this first paper is not really very clear: it is headed non-alcoholic cirrhosis, but many of the paragraphs suggest that it is the alcoholic form after all which is being discussed.

The second paper deals with the alcoholic form of cirrhosis alone, and the author shows here that while under observation the series of sixty-seven cases which he tabulates had large livers. There were only eight autopsies however out of the whole number; so that it is clear Dr. Foxwell's argument is based largely on conjecture. The result given of the autopsies on the three female cases must surely be a misprint, for as read in the text it shows an average weight actually less than the average normal weight computed by Reid. Forty-six of the sixty-seven cases are still living; so that there is plenty of time yet for contraction to take place, and they may eventually refute rather than support his argument. While agreeing with Dr. Foxwell that clinically the alcoholic liver is enlarged more often than the text-books would have us believe, we feel that few will admit that he has proved his point in the papers before us.

* The Enlarged Cirrhotic Liver. By Arthur Foxwell, M.A., M.D. Birmingham: Cornish Brothers.

AN INQUIRY INTO THE DIFFICULTIES ENCOUNTERED IN THE REDUCTION OF DISLOCATIONS OF THE HIP.*

THIS work consists of the publication in book form of the essay to which the Samuel D. Gross prize was awarded in 1895. The first section deals with the anatomy of the pelvis and hip-joint and with the functions of the latter, and here Dr. Allis, in addition to drawing very largely on the work of others, puts forward many valuable and original suggestions of his own. In the pages following the author gives a very complete account of the morbid anatomy of dislocations of the hip

Dr. Allis adopts a somewhat novel classification of dislocations of the hip, for he divides them up into (*a*) inward and (*b*) outward dislocations, including under the former heading the pubic and thyroid, and under the latter the dorsal and sciatic. In the production of all dislocations he recognises three steps, viz. :— (1) Laceration of the capsule, (2) escape of the head of the bone from the confines of the socket, and (3) shifting of the head of the bone from the position it occupied at the moment of escape to its final destination, and rightly insists that any method of reduction, to be scientific, must aim at retracing these steps in proper order.

Throughout the book Dr. Allis shows evidence of having done a large amount of original work, and he is to be congratulated on having written a most complete and practical account of the subject.

STRATHPEFFER SPA, ITS WATERS AND CLIMATE.†

DR. FOX has written an interesting little guide-book to Strathpeffer Spa and its waters. As might have been expected, attempts are made to show the superiority of these waters over those of other spas, but the author stops here, and one cannot

* An Inquiry into the Difficulties encountered in the Reduction of Dislocation of the Hip. By Oscar H. Allis, M.D. Philadelphia : 1896.

† Strathpeffer Spa, its Waters and Climate. By R. Fortescue Fox, M.D. Third Edition. London : Adam and Charles Black. 1896.

help feeling grateful to him for not claiming more hours of sunshine and a lower rate of humidity and mortality as compared with other watering-places in general. The descriptions and analyses of the waters are succeeded by the usual hints as to spa treatment and behaviour, and these, with a chapter on geology, will doubtless prove of interest to anyone who wants information about Strathpeffer.

New Books, etc., Received.

The Surgery of the Chest. By STEPHEN PAGET, M.A. Oxon., F.R.C.S., Surgeon to the West London Hospital and to the Metropolitan Hospital. Illustrated. Bristol: John Wright and Co. London: Simpkin, Marshall, Hamilton, Kent, and Co. Limited. 1896.

Gall-stones or Cholelithiasis. By EDWARD MANSFIELD BROCKBANK, M.D., M.R.C.P., late Resident Medical Officer at the Manchester Royal Infirmary and the Birmingham General Hospital. London: J. and A. Churchill. 1896.

Royal Infirmary Cliniques. By ALEXANDER JAMES, M.D., F.R.C.P.E., Physician to the Royal Infirmary, Edinburgh. Edinburgh: Oliver and Boyd. 1896.

The Enlarged Cirrhotic Liver. By ARTHUR FOXWELL, M.A., M.D., F.R.C P., Physician to the Queen's Hospital, Birmingham; Examiner in Medicine to the University of Cambridge. Birmingham: Cornish Bros.

Transactions of the Dermatological Society of Great Britain and Ireland. Edited by J. HERBERT STOWERS, M.D., and LEONARD ARTHUR BIDWELL, F.R.C.S. 1895-6. Vol. ii. London: H. K. Lewis.

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THE

BIRMINGHAM MEDICAL REVIEW.

NOVEMBER, 1896.

ORIGINAL COMMUNICATIONS.

INAUGURAL ADDRESS.*

BY SIR WILLIAM H. BROADBENT, BART., M.D.

THE invitation to deliver this address reached me almost simultaneously from your past President, Mr. Chavasse, and from Dr. Carter, who now presides over you, and both with one accord gently deprecated any flight into the realms of theory or the discussion of any recondite pathological question, informing me that my audience would consist mainly of men in active practice who would most appreciate something bearing upon their daily work.

The only occasion on which I have hitherto appeared before a Midland audience was when I gave the address on Therapeutics at the Birmingham Meeting of the British Medical Association, and I then naturally took for my subject the mode of action of remedies. It may perhaps have been some dim recollection of this which inspired the apprehension that I should think it my duty to bring before you this evening some abstruse question in the science of medicine; or possibly some remains of an early reputation for work of an unpractical character may cling around my name. When I was writing such papers as those on the Bilateral Association of Nerve-nuclei, on the Cerebral Mechanism of Speech and Thought, and on the Application of Chemical

* Delivered at the meeting of the Midland Medical Society, October 29th, 1896.

Principles to the Action of Remedies and Poisons, I well remember how the folly of giving my attention to such questions was pointed out to me, and how my friends used to shake their heads and say that while I had a certain amount of clinical ability I should never get on in practice.

Your President and ex-President ought to know what would suit the Society best, and of course I obey them, but I am not sure that they are right. My experience of country practitioners is, that as they go about their work, a large proportion of them are not content simply to apply their knowledge in the relief of suffering; they revolve in their minds the problems presented by disease, and welcome above everything any light which can be brought to bear on its nature and processes, and on the way in which remedies produce their effects.

Probably, however, the motive at the root of the suggestion that I should give my address a practical turn was kind consideration for my time and strength, and a desire to make the task as little onerous as possible, but I could never undertake with a light heart the duty of addressing a society like this, or presume to offer you what had cost me no thought or labour.

My orbit being thus circumscribed, it has seemed to me that I could not do better than submit to your notice and criticism a few clinical observations and experiences which have interested me, certain views which I entertain and speculations in which I indulge with regard to the phenomena of disease, and some points of treatment which may perhaps be useful.

We all of us in the course of practice meet with facts and cases not perhaps of sufficient importance to be made the subject of a formal lecture or paper or communication to a society, or sufficiently conclusive to establish a particular line of treatment, but which are worthy of record as furnishing food for reflection and perhaps hints or guides to further observation.

In the first place I will bring before you some recent experience in the use of the ice bag, in which I have followed the lead of my colleague at St. Mary's Hospital, Dr. David Lees. You are all familiar with the application of cold in the repres-

sion of local inflammation, say in joints and for various other purposes. Dr. Lees has made an extension of this therapeutic method to the treatment of acute affections of internal viscera. He has, for example, tried the ice bag largely in pneumonia. The results appeared to me to be encouraging; but it would have taken a very long time to convince me that a definitely beneficial influence was exercised on the course of this disease by the local application of ice, had the experience applied only to pneumonia. Nothing can be more difficult than to form a just estimate of the results of a given line of treatment in this disease, as is shown by the fact that it has always been a favourite therapeutical battle-field, and that success has been claimed for every kind of treatment. One source of difficulty is that the attack usually terminates by crisis in from five to seven days, the period not being quite constant; and it is a temptation to put down the sudden fall of temperature and the striking improvement attending the crisis to the credit of the treatment which happens to be in use at the moment, especially if it comes early. Not that I should consider for an instant that an observant and experienced physician like Dr. Lees would be misled by this.

A greater difficulty, however, is in estimating the severity of an attack of pneumonia and the danger attending it, and this varies enormously in different cases and in different series of cases. One patient will certainly die; another will as certainly recover. The temperature, pulse-rate, frequency of respiration, separately or in combination, afford no safe basis of comparison between one case and another; with nothing remarkable in any of these criteria we may see at a glance that the patient is in extreme danger or that the prognosis is favourable.

But in pericarditis it is easier to follow the results of applying an ice bag over the heart; and having satisfied myself that no danger attended its use and that the effects were favourable, I have tried it in every severe case I have seen for the last two years, now numbering six. All did remarkably well. In one, the patient, a young girl, was considered to be moribund when

I was called to her; she had for some time been delirious and was barely conscious, the pulse could scarcely be felt, and the action of the heart was extremely feeble and irregular. In another, the condition of the patient was hardly less serious; in both cases a despairing prognosis had been given. Improvement dated from the time the ice bag was applied, and in my judgment it saved the patients' lives. A third very severe case recovered. The others were examples of rheumatic pericarditis presenting no unusual features of severity. In one, however, pericarditis relapsed on the premature removal of the ice bag, and the relapse was complicated by pneumonia, which was also treated by the ice bag. No effects whatever on the heart are now traceable, and the patient, a schoolboy, is allowed to play cricket, ride, and swim.

With regard to pneumonia I will let Dr. Lees speak for himself, and I have asked him to write down rules for its treatment by the ice bag. He has also given me the notes and chart of two cases in which, by early application of ice, the disease has apparently been cut short. Instead of a sustained high temperature for a week and a sudden critical fall to 95° or 96° F., the temperature has fallen steadily from the moment when the ice bag was applied.

THE ICEBAG IN PNEUMONIA.

1. Apply the icebag over the dull area, and especially over the *advancing edge* of the consolidation

2. If the area is large, use two bags at least, or three. Even young children may require two.

3. Expect to find a distinct *local* effect (improvement of per cussion-note, less bronchial breathing, looser râles) on careful physical examination, after the ice has been applied for twenty-four hours.

4. If fresh areas of consolidation develop, use additional bags. Four or even more may be needed in a bad case. The amount of the dose is as important as it is with drugs.

5. Take the temperature every half-hour for the first three hours, afterwards every two hours.

6. Apply hot-water bottles to the feet and legs. For children supply these *before* the ice is applied.

7. Examine the physical signs carefully twice daily, and shift the bags accordingly.

8. If pericarditis is present, place one icebag over the heart.

9. If temperature below 99°, or hands cold, or lips bluish, remove the bags for an hour; then replace them, and use them for two- or three-hour periods, with one- or two-hour intervals.

10. If in a severe case there is distinct cyanosis, and a rapid feeble pulse, consider whether leeches (in urgent cases venesection) would not relieve the right heart.

11. In all cases see that sleep is secured during the first three or four nights. If the relief afforded by the icebags does not suffice for this, give chloralamide or morphine.

12. Pneumonia treated vigorously with ice within twenty-four hours after the rigor may sometimes be aborted.

Good results, again, have followed the application of the ice bag in inflammation of the appendix cæci. This is easily understood from the accessibility of the part to external cold, and from the fact that in more than one case in which I have concurred in recommending operation on account of recurrent perityphlitis, the appendix has been found simply curled up, congested, and thickened, without concretions or other contents.

One more experience of the good effects of the ice bag—and this a personal one—in sciatic neuritis. Some years since, I had a very sharp attack caused by an evening ride in a Hansom, on the seat of which there was snow. I was fourteen days in bed, at the end of which time the muscles of my right thigh had practically disappeared, and I stripped the epidermis in ribbons from the knee to the ankle along the outer side of the leg. I was lame, and the limb was œdematous for four months. Last winter sciatic pain again set in with tenderness in the nerve. It is not an easy matter to give up work, but when œdema of the foot was added to the pain and lameness, I thought it time to capitulate, and I went to bed with a couple of ice bags along

the course of the nerve. The pain was at once relieved, and in thirty-six hours all tenderness was gone. By way of precaution, I only did morning work for a couple of days, and applied the ice bag during the afternoon and night, after which I returned to full duty without a trace of pain or lameness.

Proceeding now to a very different subject, on more than one occasion I have given instances of effects traceable to intestinal sepsis. Other microbes, besides the bacterium coli commune, are present in the intestinal canal, and apparently at times find conditions which favour their activity, and they may then produce ptomaines which are absorbed into the blood and give rise to serious symptoms—headache, heaviness, torpor, and, in extreme instances, almost coma with subnormal temperature—which are cleared off at once by two or three doses of calomel; or in other cases it is a persistent sub-febrile condition attended with headache and depression which is so caused. Some of the abnormal and severe symptoms at times met with in the course of typhoid fever are, in my opinion, due to intestinal sepsis, and not directly to the typhoid bacillus or its products. Other micro-organisms find a suitable culture-medium in the fluids exuding from the inflamed Peyer's patches and the intestinal mucous membrane, and the ptomaines which they generate may be deadly poisons.

The following case appears to me to be a new illustration of what may be done by bad gastro-intestinal chemistry.

A very acute case of Hodgkin's disease came under my observation two years since in a gentleman aged about 52 or 53. The glands of the neck, axillæ, and groins rapidly attained a very considerable size, but these were eclipsed by the enormous development of the glands within the abdominal cavity. One mass, in particular, could not be disengaged from the liver in the neighbourhood of the portal fissure, and was carried with it in its movements. The patient was sent to Folkestone, where he was watched by Dr. Eastes. Arsenic was given in gradually increasing doses, and the advance of the disease appeared to be checked, but the strength steadily diminished. The patient was

a chronic dyspeptic, and a serious aggravation of his weakness and suffering was obviously traceable to dilatation of the stomach with its attendant anorexia, flatulence and acidity, and frequent copious vomiting of offensive matters. With some difficulty he was persuaded to allow the stomach to be washed out, upon which not only were the symptoms directly due to the dilatation relieved, but to our astonishment, the glands began to melt away with great rapidity. The mass projecting from under the liver detached itself from this organ, and its component glands fell apart, other masses in different parts of the abdomen (presumably mesenteric) resolved themselves into groups of glands not easily distinguished, and a little later in point of time a steady diminution of the cervical, axillary and inguinal glands took place. With this the patient gained strength and colour, and we were looking forward to a complete recovery, when his mother-in-law, who was on a visit in the house, took influenza and died, and he also was struck down by this disease.

Without generalising too far or too confidently from a single case the conclusion is at least suggested that the glandular enlargement here was due not to infection by cellular elements carried from one to another, but to irritation by some toxic substance generated in the dilated stomach which excited active proliferation in the cells of the glands, beginning with those in immediate relation with the surfaces from which the irritant was absorbed.

Should confirmatory experience be obtained, new light will be thrown on the causation of at any rate one form of Hodgkin's disease. It will be worth while making a careful examination of all cases from this point of view.

A similar case has come under my observation since, early in the present year. All the glands were greatly enlarged and masses could be felt in the abdomen. There had been severe dyspeptic symptoms before the glands were affected, and the patient himself attributed his illness to tinned meat and bad food generally in South Africa. He refused, however, to have the stomach washed out and was in other respects unmanageable, and the disease proved rapidly fatal.

In all these instances of disorder due to the formation of some ptomaine or toxin in the gastro-intestinal canal the process is chemical, but there are numerous other effects of dilatation or distension of the stomach traceable to mechanical pressure, or to reflex disturbance of the nervous system. One is vertigo, which may be very severe. There is no translation or revolution of surrounding objects, and the giddiness does not come with the suddenness of auditory vertigo, but the patient will stagger as if he were on the deck of a steamer, and may be unable to cross the room wtthout clinging to articles of furniture, or may have to hold on to the bedstead on rising in the morning. One feature it shares with Menière's disease, and that is that it may be provoked by various movements, by looking up, by stooping and again on rising, by changing from the horizontal to the vertical position, and *vice versa*, and by turning in bed, especially towards the left side. An interesting point about this vertigo a stomacho læso, is that it may be instantly relieved by the escape by eructation of a few cubic inches of gas. Apparently, therefore, it is a mechanical effect of over-distension, and yet this can scarcely be from pressure on the heart, since the pulse may be perfectly steady and good when the giddiness is at its worst and the face of normal colour and expression. We must assume, therefore, that the probable cause of the vertigo is reflex disturbance of the cerebral circulation excited by the distension.

Other symptoms attributable to dilatation of the stomach, or in some cases perhaps to distension without actual and definite increase of its normal capacity, are sleeplessness and nocturnal attacks of asthma. Sleeplessness, bad dreams, and perhaps nightmare from indigestion, are probably more or less a familiar experience to most people, but the special form of insomnia caused by dilatation of the stomach is that in which the patient drops off to sleep at once on going to bed, and then wakes up punctually at a given hour to sleep no more till near the time when he ought to rise. In these cases the sufferer may not be conscious of indigestion or flatulence. Digestion, indeed, as a

chemical process, may be little impaired, but the stomach does not take the trouble to pass on the whole of its digested contents into the duodenum, and fermentation takes place in the residuum with evolution of gas and acid which at a given time reach an amount fatal to sleep.

Sleeplessness, which has lasted for months and for which all the various soporifics have been tried, may sometimes be dismissed in a week by remedies which relieve the distension of the stomach. The following is a recent illustration :—

A gentleman aged 39 consulted me on October 5th. Seven years previously he had broken down, and for two years had suffered from nervousness and sleeplessness, on account of which he had had to give up business and spend a long time abroad. After five years of good health he had again begun to suffer from sleeplessness in May although he was free from worry and was leading an active out-door life. He had taken sulphonal in gradually increasing doses but without result. Almost every night he woke up after a short sleep and remained awake for the rest of the night; under the loss of rest his nerves were giving way. On examination the stomach was found to be dilated; sulphonal was forbidden, and he was ordered phosphate, carbonate and sulpho-carbolate of soda with spt. ammon., tinct. gentianæ co., chloroform and peppermint; his diet was of course also regulated. On the 13th he called to report that he was sleeping well.

Nocturnal asthma coming on punctually at a given hour, not associated with bronchitis and emphysema, is not unfrequently due to dilatation of the stomach, and may sometimes be put a stop to with equal promptitude by treatment of this affection. So, again, with palpitation. Symptoms, indeed, of whatever kind which observe this rule may be suspected to arise from dilatation or distension of the stomach.

If I had taken dilatation of the stomach as the subject of my address I should have enumerated, among the effects observed from time to time, epileptiform attacks, a peculiar nocturnal diarrhœa, and other less important symptoms.

One effect of a serious character, often I think overlooked, is more worthy of attention; this is sudden death. It is, of course, put down to fatty degeneration of the heart, or to valvular disease when this is present; and no doubt some kind and degree of organic weakness of the heart exists. A strong healthy heart does not allow itself to be finally stopped by the pressure of a distended stomach. On the other hand, a heart which has been functioning efficiently up to a given moment, in spite of a certain degree of degeneration or dilatation, does not suddenly cease to beat of its own accord for no reason at all; and among the causes which bring it to a standstill is the mechanical pressure of a distended stomach.

Nowadays we make the diagnosis of fatty degeneration of the heart with great confidence, and we also cure it. But I am not now speaking for myself. I have to confess to old-fashioned difficulty and uncertainty. Symptoms and physical signs are sometimes met with in a quite young person which later in life would be extremely suggestive of fatty heart—a short weak pulse, an entire absence of apex beat or impulse, and short weak sounds, but I do not venture to conclude that advanced degeneration exists. I reflect, moreover, that the causes which in youth give rise to such functional weakness of the heart may, at middle age or in advanced life, when the suspicion of fatty change would be more justifiable, have the same effect. A personal friend of mine, at the age of 45 or 48, had the pulse and heart conditions above described, and one day while eating he turned ashy pale and became unconscious and his jaw fell. This looked very like advanced fatty degeneration, but he lived for fifteen years.

While imaginary disease of the heart is diagnosed and, being imaginary, is of course cured, dilatation of the stomach, which is often a source of real danger, is frequently ignored.

It is important to know that the patient, when the danger is greatest, is usually entirely unconscious of flatulent distension; there may be little inconvenience of any kind, or merely a sense of oppression and a difficulty of satisfying a desire for a good

deep breath. The pulse, again, may be unaffected, or may be weak and hurried or irregular or intermittent. It may be said, indeed, that flatulence often produces its most serious effects when the subject is quite unaware of its existence. When it gives rise to pain or discomfort, what we are conscious of and feel is not the mere distension by gas, but the effort to expel it or pass it on. When, however, the recumbent position is assumed, so that the weight of the abdominal viscera is thrown against the diaphragm, or when the patient stoops or bends forward while sitting or kneeling, so that the chest is brought down upon the abdomen, the pressure upon the right side of the heart so occasioned may be sufficient to arrest its action.

Another illustration of the apparent paradox that people rarely die of the disease from which they are suffering.

A few examples may be given. Some years ago I attended a distinguished artist who suffered from mitral stenosis. Compensation had broken down under the fatigue and excitement of a journey through Spain, and the consequent embarrassment of the circulation nearly proved directly and speedily fatal. By leeches applied over the enlarged liver, calomel purges, and other treatment, the venous stasis and over distension of the right heart were overcome, and the patient so far entered upon convalescence as to sit up and to leave his room for a great part of the day. My visits had almost ceased, but he was still under the observation of his family medical man, when one morning, just after a good breakfast in bed, he became impatient with the nurse, and insisted on washing himself without her assistance. He sat up in bed with the basin between his knees, and at a given period of his ablutions, leant over it to wash his face and fell back dying. The pressure upwards of the abdominal viscera during this movement, with the full stomach immediately under the diaphragm, brought the dilated and enfeebled heart to a standstill.

In November, 1894, a gentleman aged 73, whom I had known for some time but had scarcely seen professionally, consulted me complaining of weakness and breathlessness on very

slight occasion, even from a slight walk on the flat. He had returned about a fortnight previously from a journey across Canada, which he had borne very well and had enjoyed; after that he had had some days' shooting and had walked well. In the following week he had been conscious of shortness of breath when reading prayers in the morning, and three days before I saw him had turned back from an uphill walk to church on account of a sense of hollowness and weakness in the chest and breathlessness. The occasion of his visit to me was that he had had a recurrence of this on leaving his home that morning. The pulse was 90 instead of 60 (the usual rate with him), large and tense. There was no apex beat or cardiac impulse, but the sounds were fairly good. The abdomen was distended, and the stomach resonance came up to the fifth space and extended over a very large area; it was evident that the upward displacement of the heart with the pressure upon the right ventricle was the cause of the variable faintness and breathlessness. He went from my house to the city, transacted business and had lunch, and in the afternoon took a long railway journey, arriving at his country house late for dinner. He dined an hour and a half after his usual time, entertained a party of friends with his customary cheerfulness and vivacity, and went late to bed. On lying down he uttered a slight groan, was found unconscious and to be in a state of general tremor, and almost instantly died.

In January 1895 I was consulted by a gentleman aged 84 on account of severe anginoid attacks, the pain radiating from the cardiac region to the spine and down the left arm. They frequently came on when he was in bed, especially if he tried to apply ointment to eczema, from which he was suffering, while in the recumbent position, and they were induced by slight exertion. The pulse intermitted about once in eight beats, was large and short and the walls of the vessel were thin. The heart was about normal in size, a slight impulse was recognisable, the first sound was short. and a rough systolic aortic murmur was present. The bowels were much constipated and the

stomach distended. There was no doubt some degeneration of the heart, but it seemed probable that the attacks were provoked by pressure from the distended colon and stomach. This was especially suggested by the fact that the attempt to reach the lower part of the body to apply his ointment when in the recumbent position was certain to bring on the pain.

He was relieved by treatment based on this view and was seen only at long intervals, in July and November, 1895, then not till July 1896. In the meantime he played whist at his club three or four hours a day, went to the city occasionally and walked short distances. When last seen, on July 31st, he spoke of the angina as having returned after a prolonged absence, together with giddiness on rising from bed or stooping; and my note is—distension of stomach enormous. He was found dead in bed within a few days of this note while I was away on my vacation.

Here no doubt the heart was nearly worn out, but none the less the last straw was the distension of the stomach.

Another patient, a hard-working solicitor aged 69, of eager temperament, had a narrow escape this year. He had consulted me at long intervals for the effects of overwork and indigestion, and had had for some years a weak irregular pulse which had been worse since an attack of influenza some two years ago. One morning in May he was brought to me by his wife after a series of five city dinners. He ridiculed her fears and said there was nothing the matter with him, but the distension of the stomach was so great and the effects on the heart so serious that I forbade him to go to his office and told him to return home at once. He obeyed me so far as not to go to business, but instead of going home he went shopping, and while looking at some article he turned deadly white, his jaw fell, and he became unconscious. He was brought round by brandy, but the stasis of the circulation lasted long enough to allow of thrombosis of a small vessel in the speech centre.

Persistent dilatation of the stomach with occasional attacks of distension may wear out a really strong heart.

Some years ago I was consulted by a lady aged about 62 on account of attacks which had been called angina. The pain was very severe, and radiated down the left arm, but the attacks did not come on during exertion but in repose, and especially at night; they lasted too long, also, for true angina, and were in no way characteristic. From the symptoms alone it was evident that the case was one of pseud-angina of gastric origin. This was confirmed on examination. The pulse was large, tense, and well sustained, the heart somewhat enlarged, with the powerful thrusting apex beat and impulse of hypertrophy. The bowels were constipated and the stomach considerably dilated. The spurious angina ceased at once under treatment by mild aperients and an alkaline tonic and carminative mixture with regulated diet, but the patient would not submit to have the stomach washed out. She took no exercise, fed injudiciously, and after an immunity of many months the attacks returned. In the course of years I saw her with different medical men, and other physicians were consulted. Digitalis and strophanthus were given at different times when the patient was not under my observation, but so far as I could gather with disastrous results. Early in the present year the attacks became more frequent and severe, and under their influence the tension of the pulse was reduced and the action of the heart became less vigorous, the apex-beat, however, being well defined and thrusting, till at length acute dilatation of the heart took place during an attack, the apex-beat becoming diffused and displaced to the left and entirely losing its thrusting character. The next attack proved fatal.

The diagnosis of dilatation of the stomach is usually very easy, especially when there is also the distension which renders it dangerous, but it must be remembered that the height and extent and character of the tympanitic resonance, and the distinctness and volume of the splash, will vary greatly according to the time after food at which the examination is made and the character of the last meal. The stomach may at a given moment be empty and collapsed, especially in cases attended

with diarrhœa. Only three weeks ago I was consulted by Dr. Brown, of Wateringbury, on a case of long-standing diarrhœa, in which from the character and copiousness of the motions I concluded that they came from the upper part of the small intestine, and from the history and duration that there was probably some lesion which was not amenable to medical treatment. The abdomen was hollow, and to the left of the median line just above the umbilicus was a point of resistance and tenderness. I considered that an exploration was desirable, and that at any rate a surgeon should be consulted. The case was submitted by Dr. Brown to Mr. Treves, who opened the abdomen, and this is his report: — "The stomach was so dilated that it filled literally nearly one-half of the abdomen. It extended into the left iliac fossa, and in the median line it reached to within an inch and a half of the pubes. The seat of tenderness on the left side corresponded to the much-displaced pylorus, which was occupied by a firm fibrous ring." This Mr. Treves divided and dilated.

The point of the case in relation to the present subject is that at the time of my examination this enormous stomach must have been empty and collapsed; there was none of the resonance which it would have given if it had contained gas, and the epigastrium was depressed. The facts of this case tend to confirm a conjecture I have made before, that in certain examples of dilatated stomach the anatomical disposition of the pylorus is such that the weight of the viscus when laden with a heavy meal makes the flexure at the junction of the stomach and duodenum so acute as to prevent the ready exit of the gastric contents. In the horizontal position the dragging is relieved, the obstacle at the pylorus is removed, and the small intestine may be flooded with chyme.

It must not be supposed that the sole cause of dilatation of the stomach is error of diet, or that it can always be cured by regulation of the food. It is very common as an incident, so to speak, of the neurotic condition, and more than once when a dilated stomach in such cases has been washed out, it has been

found that digestion has proceeded with remarkable rapidity and efficiency. The dilatation may be due entirely to atony of the muscular walls, allowing of passive distension of the viscus, and not to any distending influence from within by superabundant evolution of gases; and sleeplessness from worry or grief is not infrequently brought about indirectly, the depressing emotions giving rise to dyspepsia and loss of tone in the muscular coats of the stomach, and the consequent dilatation of the stomach giving rise to the loss of sleep. In the treatment of this affection, therefore, while it is necessary in the first instance to neutralise the acids and promote the expulsion of the gases resulting from fermentation and to destroy the fermentative organisms, or at least arrest their activity, the condition of the nervous system must receive attention at the same time and at a later stage.

I have now a question to ask. Every year I see scores of anæmic and chlorotic girls, with or without amenorrhœa, some of whom look as if they were already victims of phthisis, and all of them seeming from their weakness and pallor to invite its onset. But I scarcely ever meet with them later actually suffering from phthisis. Perhaps they are taken to other physicians if attacked by this disease, but I see a certain number of them afterwards. What I wish to know is whether my personal experience corresponds with that of men in general practice, who watch these girls grow up to womanhood. If this is so, then anæmics enjoy some sort of immunity from phthisis, and anæmia is protective in a certain degree against tuberculosis. Possibly this might be capable of practical application.

The whole subject of immunity from and proclivity to disease produced by micro-organisms is being eagerly investigated and is full of interest. The relations of these diseases to each other are worthy of study, and when explained by experiment will constitute an important chapter in medical science. Some of them predispose to others—measles to whooping cough, influenza to typhoid fever. This last again predisposes to tuberculosis. Typhus, on the other hand, used very frequently

in the gigantic epidemic which occurred in the early period of my work as Physician to the London Fever Hospital to leave the patient in better health than before the attack; possibly because of the good feeding during convalescence, but, reflecting on the fact since, it has seemed to me that the bacillus of this disease, or its toxin or antitoxin, might perhaps clear the system of all other pathogenic bacteria. There is evidence, pointing in the direction that an attack of one form of disease may destroy the microbes of another, in the fact that a severe attack of small-pox may completely arrest phthisis. Some remarkable cases illustrating this were published a few years ago, among others by my friend Dr. Lawrence, of Chepstow.

In connection with the subject of anæmia I would refer for a moment to the remarkable variety of this affection, if it can properly be classed under the head of anæmia, which Sir William Gull called anorexia nervosa. There is an extraordinary disinclination for food and very little is taken; the emaciation is extreme and yet the patient seems capable of and will take any amount of walking exercise. According to my experience only young girls suffer from this disease and, whereas in anæmia and chlorosis amenorrhœa is secondary to the deterioration of the blood, it is here primary and forms the starting point of the symptoms. A question suggested to my mind is whether we have not in this affection another illustration of reaction between a given organ and the system generally; whether it is not a consequence of the suspension of ovarian activity and of the absence of some substance normally returned by the ovaries to the blood. Perhaps ovarian extract may be of service in such cases; I think I have seen good effects, but my experience as yet is small.

If there is time, I should like to add one word on the treatment of epilepsy. I have previously expressed the opinion, and do so again now, that it has been too much the rule to give bromides in epilepsy as it has to give digitalis in heart disease. The results are often disastrous. If the attacks are arrested,

which is very rarely the case, the patient may be a nervous wreck. "*Il est mort guéri*," said the enthusiastic dermatologist when the skin of his dead patient was free from the eruption he had been treating. Some of these *cured* epileptics are worse than dead.

My former teacher and colleague, the late Dr. King Chambers, wrote a book on "The Indigestions," and a book might very well be written on the Epilepsies.

The "Study of Convulsions," which led to such brilliant results in the hands of Dr. Hughlings Jackson in the elucidation of the functions of the cerebral hemispheres, is not yet exhausted of results, and may yet lead to therapeutical indications.

In all forms of epilepsy there are two elements—the inherent tendency in the nervous system to convulsions, which may be interpreted as instability of the nerve cells of the higher centres, and some influence outside the nerve centres which determines the attack. In true epilepsy, by which I mean cases in which the paroxysms have begun to appear during adolescence, the inherent tendency is the predominant factor, and very slight exciting causes suffice to precipitate an attack; but when there has been no development of the disease between puberty and adult age, it may be looked upon as certain that some disturbing influence plays an important part in the causation of the attacks. I have seen a dead terminal phalanx, killed by an attack of whitlow, give rise to very severe epilepsy, which at once ceased when the bone was removed. So also a piece of glass embedded in the wrist near the ulnar nerve. But crowds of such cases are recorded. Intestinal worms, again, have undoubtedly given rise to epilepsy, and ovarian irritation is a recognised cause of a certain form of the disease. Whenever, then, epileptic attacks make their appearance in adult life, a persevering endeavour should be made to discover some functional derangement which may have upset the equilibrium of the nerve centres. In my experience dyspepsia, especially associated with dilatation of the stomach, has given rise to recurrent epileptiform attacks,

which have ceased with the removal of the disorder of the digestion.

A lesson may also be drawn from the epilepsy of early syphilis at a period of the disease when gummatous exudation into the meninges of the brain does not take place and no coarse lesion is found after death. If the constitutional disturbance attending early secondary syphilis can cause epilepsy, it is possible that other remedial constitutional conditions may occasionally have this power.

But even in true epilepsy, in which there is inherent instability of the cortical centres, much may be done to reduce the frequency and severity of the attacks without deadening the nervous energies by bromides. Apart from a tendency to periodicity not easily explained, one of the most common exciting causes is variation of the general blood pressure and languor of the cerebral circulation. The convulsions are most frequent in the night, when the circulation has run down during sleep, or in the early morning, when the blood is not carried vigorously to the head,—witness the purple face of some weakly persons in the early part of the day. They scarcely ever occur during exertion or during febrile conditions. Now these fluctuations of the circulation can be minimised by measures which raise the tone and increase the vigour of the heart and vessels—early hours, fresh air and exercise, regular and simple meals, aided, when necessary, by tonics. For many years I have been accustomed to distinguish between high tension epileptics and low tension epileptics, according to the state of the pulse. The prognosis is much more favourable when the arterial tension is high, since it is easier to reduce the resistance in the arterioles and capillaries and lower the tension by eliminants and non-nitrogenous food than to give new vigour to the heart and fresh tone to the vessels.

Our endeavours need not end even here. It is not impossible to diminish the instability of the nerve cells by improving their nutrition. Unless I have deceived myself this has not unfrequently been attained by the administration of phosphorus

and strychnine. At any rate durable recoveries have taken place under this treatment.

I am afraid I have made but a poor return for the great honour done me by the Council of this important Society in inviting me to deliver their Annual Address and the extreme kindness with which you have received me. Occasions of this kind may be turned to profit in various ways. The subjects which I consider of highest importance when medical men confer together are those bearing on the mode of action of remedies and on the elucidation of morbid processes. It seemed to me many years since that the time was come for some great advance in the comprehension of the way in which remedies and poisons produced their effects, but it is clear that a more intimate knowledge of the agencies concerned in the causation of disease and the modifications which take place in vital chemistry as well as in structural integrity in the course of disease must precede any general application of chemical principles to the explanation of therapeutical action; and high as is the value which I attach to the power of saving life and alleviating suffering conferred by antiseptic surgery, by the administration of gland-extracts, and by the employment of antitoxins, this value is enhanced by the fact that we have definite knowledge as to how the beneficial effects are produced.

Next in importance to the advancement of physiological and pathological science is improvement of the art of diagnosis, which is the first step in the application of medical science to the purposes of healing. In proportion as the knowledge of disease and of morbid processes becomes exact, diagnosis ought to be accurate and far-reaching. It is not a diagnosis in the true sense of the word simply to label a disease with a name; when this is done our most serious work is only begun.

The first of these great subjects is entirely beyond my powers and opportunities, and I can only extend an enthusiastic welcome to the work which is being done in this department by the young generation of medical men. I have moreover attempted no task in connection with the second, in which

respect indeed I might very well have come to Birmingham to learn instead of to teach. But homely and informal discussions even of familiar subjects may be attended with profit. We have to re-adjust our ideas of the cases which come before us in daily practice so as to bring them into accord with the advance of knowledge, and where we are still unable to see our way clear by the light of science we have to be guided by our own experience and to endeavour to take advantage of the experience of others. Long ago I was deeply impressed by the sagacious words of a distinguished Birmingham Physician, and the Functional Medicine of Wade has always stood out in my mind as work of a high stamp. No medical honour was ever more worthily conferred than that bestowed on him, and I shall be satisfied if this address to which you have listened with so much indulgence, and to which I have ventured to give no higher title than Clinical Obiter Dicta, may be accepted as a humble contribution to Functional Medicine.

ABDOMINAL PANHYSTERECTOMY FOR LARGE FIBROMYOMATA OF THE UTERUS.

BY FRED EDGE, WOLVERHAMPTON.

AT the present moment there is a great internal working in the region of treatment of uterine myoma, and all who are interested in this branch of surgery cannot but think that some great advantages will be gained in the end from this battle of men armed with their methods. The lists of successful cases of hysterectomy are quite striking, and as they are by several operators in various quarters of the world they are not due to chance, nor can they, in the ordinary acceptation of the term, be ascribed to selection of cases. The results are rapidly approaching those of ovariotomy, and may be probably now as good, taking cases of each operation as they come.

Now what will this mean and what effect will it have on treatment of myoma of the uterus? A myoma which is giving trouble, and which has not been improved by medicinal or other general means, is attacked in various ways. The first method is typified by curetting. It may be uterine applications, curetting with or without applications, actual or other intra-uterine cautery, or the use of electric apparatus. Not one of these means is able to effect removal of the myoma, or at any rate not in the hands of the non-enthusiast. In some cases by their aid the patient may be carried on until the myoma is affected by the menopause. But apart from the fact that unfortunately the menopause in these cases does not come when we want it, and that the tumours are apt to take on quicker growth or even malignancy at the time, it is the sad experience of many that these minor gynæcological operations are not quite so innocent as inexperience would lead one to believe, and that their attendant danger is perhaps not laid to their credit because it is often of a rather slow septic nature, although in some cases it is very acutely fatal. This group takes no account of complications in the adnexa.

The second method is the bringing on of the menopause by removal of the tubes and appendages. This method, like many indirect surgical methods, has a great disadvantage in that its most brilliant cures are in the cases which are not the worst. Besides this it is unfortunately more dangerous the larger and more fixed the myoma is. Then it fails entirely in a certain percentage of cases from the presence of adventitious ovaries or the non-inclusion of some nerve or ganglion, or from the fact of the tumour having received scarcely any blood from the ovarian arteries, or because some particle of ovarian tissue is left adherent. And it must of necessity fail when the growth is malignant. Immediately the worst possible case for this method is one of large myoma filling the pelvis, for the swelling of the uterine mass after removal of the appendages, and probably its strong traction upon the rectum by the ligatured broad ligaments, is almost certain to lead to dangerous obstruction of the

bowels, and peritonitis. We are not speaking here of extra-mural myomata, which, whether extruded under peritoneum or mucous membrane, are removed directly.

The third method aims at removing the tumour, and it is only incidentally that the uterus is taken with it. Enucleation is no doubt theoretically the proper operation for myoma of the uterus.

If we could be certain that only one myoma or nucleus for myoma development existed, and that the growth was of a benign nature, this operation would triumph in the end. Why should it triumph? Because, granted only one tumour, it follows that all operators would be compelled in time to aim merely at its removal, and consequently vast advantages would inevitably result in the technique of enucleation as have taken place in that of other intrinsically necessary operations.

The possibilities of anterior and posterior vaginal cœliotomy and of splitting the uterus extra-peritoneally have as yet been but little developed, and no one who is practically acquainted with this field of work can fail to notice and feel that it is due to the vast advances in the panhysterectomy procedures that enucleation with its doubts has failed to gain progress. At present it is out of the question, because its direct mortality is much higher than that of modern panhysterectomy, whether vaginal or abdominal or combined.

Practically then we have found that curetting and its group are only palliatives in some cases, and are not so innocent as they are often considered to be, even when practised by gynæcologists of experience; that removal of the uterine adnexa becomes dangerous in large tumours and is useless for malignant growth, besides failing often from the impossibility of stripping all ovarian tissue off firm adhesions; that the mortality of enucleation is greater than that of panhysterectomy, and that enucleation presupposes only one tumour or definite tumours of benign nature.

We are told, and find from experience, that panhysterectomy is very successful and has of late had a very low mortality. It is evident that together with its practicability and low mortality

panhysterectomy radically cures the disease and removes all its consequences. It is absolutely necessary in all fast-growing and suspiciously malignant tumours.

Hence there is no doubt that panhysterectomy has come to stay, and will, after undergoing the usual over-use, settle down into its permanent position. It really means that when a myomatous uterus is giving trouble which medicinal means do not alleviate or arrest, and when the patient demands operative interference to rid her of her trouble, that operative interference will more and more find expression in panhysterectomy whether vaginal or abdominal.

Vaginal hysterectomy has reached a somewhat final stage; and the combination of Doyen's clamps and ligature with splitting the uterus, and V-shaped morcellement with special instruments for diminishing larger masses, has enabled us to remove uterine bodies of less size than a fœtal head with comparative ease and safety. The object has been to find an abdominal method of panhysterectomy which should be as effective and as workable as vaginal hysterectomy now is in ordinary cases suited to it. Many workers have advanced the procedure, and now that we are reaching some finality, those who, like myself, are waiting for the best method, have been awake and about trying to pick the brains of the original inventor, and perhaps by combination we may sometimes reach the goal before the original worker.

Having had experience of the clamp and enucleation and of retroperitoneal treatment of the cervical stump, nothing has seemed so satisfactory as the method of panhysterectomy used by Martin, of Berlin, and Smyly, of Dublin, and Christopher Martin. This method of ligaturing and dividing between is not elegant, but it is successful. It is slow but sure, and the end always seems beautiful compared with any of the intermediate stages, which are rather bloody and indefinite.

The chief modification of this was the opening of the floor of Douglas's pouch from above upon a pair of forceps passed into the vaginal posterior fornix. Then the cervix was seized

with volsella and drawn upwards through this opening and snipped round with scissors just as in beginning of vaginal hysterectomy, except that the snipping is done through the abdomen upon the inverted cervix. This still left slow successive ligation of the broad ligaments as the only way of finishing off. Having seen Martin do this in Berlin, it did not appear to me the simple operation which I was looking for, and certainly a most difficult procedure unless one's assistants were as fully conversant with the steps of it as the operator.

This June Mr. Taylor, having been deeply impressed with Dr. Doyen's methods and having imparted this interest to me, we crossed over and enjoyed Dr. Doyen's unequalled hospitality for two days. We were fortunate enough to see him perform both vaginal and abdominal hysterectomy by his methods. But as his vaginal method by clamp is well known, I shall not enter into any description of it further than to say that he anteflexes the fundus and secures the broad ligament from above down with his elastic clamps, and that he always uses a fine pair inside the stronger pair, and then cutting inside the finer one, he has the broad ligament absolutely safe.

His method of abdominal panhysterectomy for large myomatous uterus is, to my mind, so very progressive that I cannot but think that he has gone far towards reaching the goal of our desires.

Perhaps a description of what I saw may enable the reader to grasp the operation best, especially if with this I conjoin my own first operation and its lessons.

When we were called into the room the patient was in Trendelenburg's position upon Doyen's table. The anæsthetic was chloroform given by a sister of mercy upon an ordinary mask of flannel. The operator was on the left and his single assistant on the right of the patient. Sterilised compresses were used and the general arrangement of the apparatus was after the modern aseptic methods. Catgut ligatures prepared by Reverdin's method were used exclusively for all ligatures. A sufficiently large median incision was made, the tumour was fixed by a wire corkscrew of large size and was drawn out of the pelvis and

delivered through the incision. Large compresses were placed so as to cover the intestines and each one was held by forceps. (No count of compresses seemed to be made. and none were put in the abdomen unless fixed by forceps). The assistant now passed a large pair of forceps into the vagina and up into the posterior fornix. The operator cut down in middle line with scissors upon the elevation in the floor of Douglas's pouch caused by the forceps. Having made a free incision into the vagina the anterior lip of the cervix was seized with volsella and drawn strongly upwards With scissors the mucous membrane was snipped round the cervix and pushed up in front bluntly with the finger, thus separating the bladder. I do not remember whether he now cut out the anterior peritoneal flap and thus freed the bladder entirely, but this is not necessary as the bladder can be separated in making the two large flaps. Having freed the cervix sufficiently all round he now caused his assistant to grasp between his finger and thumb of the right hand the base of the right broad ligament. Making a start from behind in the middle line now he cut upward on the right side so as to leave all the broad ligament with the tubes and ovaries and a free flap of peritoneum and capsule of the uterine mass. Practically it means that he cut through the whole broad ligament as near the mass to be removed as possible. Usually there is only one artery that spouts—the uterine—this is picked up with forceps. The other broad ligament was held by the assistant's left hand and similarly cut through The few arteries picked up on both sides were now ligatured and the operator had done his work except trimming.

To make the matter clear it is better to describe here what we now see. The tumour is removed. There is a flap of peritoneum and broad ligament on each side and behind the bladder, on which are the tubes and ovaries. This flap is large enough to easily form the new pelvic floor and leave something over. The apices of the two flaps were now transfixed and doubly ligatured. The ovaries and tubes were removed by cutting off the parts beyond the ligatures. (The ovaries and tubes may be left if it is desired). The open recto-vaginal and vesico-vaginal

cellular spaces were closed by a continuous catgut suture uniting peritoneum and vaginal walls. The flaps were pulled down over the raw surfaces of the broad ligaments by the ligatures which had been left long after tying off the tubes and ovaries The pelvic floor was now formed of peritoneum only and not a suture was evident.

A continuous catgut suture was now passed picking up peritoneum all round, *i.e.*, from both flaps and from rectal and vesical peritoneum. This was tied and pulled into the vagina, another similar suture about half an inch higher was passed and tied. This absolutely shut off the peritoneal cavity from the vagina, and no blood could enter the abdomen nor could any other fluid. The abdomen was closed after bringing the patient into a horizontal position and cleaning the peritoneal cavity.

The operation as far as removal of the myomatous uterus took 11 minutes, and the whole was finished in 35 to 40 minutes.

The specially striking points are that a large myomatous uterus can be removed before tying a single vessel, and that only the uterine artery or its branches bleed. That the bleeding is not more than from large mammary tumours. That the ovarian artery and the plexus of veins do not bleed. There is a reason for our previous views of the danger of hæmorrhage. This method only cuts through the ovarian branches to the fundus uteri; these are too small in many cases to spout. The uterine artery is cut close up to the uterus and consequently it is generally subdivided here into numerous branches of which only one or two chiefer ones spout and are easily controlled by the assistant or picked up at once. The great bleeding seen from the veins when ligatures are applied from above down is due to their being kept in a state of distension by the uterine arteries, which, although not so large as is usually thought, are capable, in the course of the 30 to 40 minutes which elapse before both are reached and tied, of pumping the blood of the whole body several times over into the veins By Doyen's method the veins and their arterial suppliers are all cut through in less than a minute and the artery at once secured with forceps if too much for the assistant to control with his finger and thumb.

My operation was upon a patient aged 43 with a large myomatous uterus where previous treatment had been of no avail. It was growing fast and the bleeding was severe. Having had reason to be dissatisfied with removal of the appendages in cases of large myomatous uteri filling the pelvis I determined to perform abdominal panhysterectomy by Doyen's method. I shall not do more than mention points of interest. My patient was prepared as carefully as possible so as to render the abdominal wall and vagina aseptic. Having no special table for Trendelenburg's position I took one trestle away from the operation table or board (it is practically an ironing board upon two trestles) and placed the unsupported end on the floor against the window. This gave too great an inclination, but was easily remedied by resting the end of the board against the wall and upon the second trestle laid horizontally. The patient's knees were bent over the edge of the board above and her feet secured by an ordinary crutch to the leg of the upright trestle. A better and firmer Trendelenburg position could not be desired, and it is a very simple matter before closing the abdomen to bring the board horizontal again.

The posterior fornix was opened and the cervix seized and cut round. I then proceeded at once to separate the bladder in front leaving a peritoneal flap. Although my colleagues had never seen the operation before we had no difficulty in controlling the bleeding vessels in the broad ligaments. Several branches of the uterine required tying on each side, but the ovarian branches did not require ligature.

Having taken out the mass I proceeded to take off the ovaries and tubes. In doing this I took too much away from the flap or else my incision had not run high enough on the side of the uterine mass, and thus the flap had not been made large enough. The result was that I could only form the full pelvic floor of peritoneum by a little tugging. Still when the second circular peritoneal suture had been tied the pelvic floor was perfect and absolutely proof from the vagina and no raw surface was seen anywhere. The peritoneal cavity was cleaned with aseptic

compresses and closed with silkworm gut sutures. A little iodoform gauze was put into the vagina.

The after course was excellent, and only on separation of the ligatures did the temperature reach 100° F. Catgut sutures made by Goegg, of Geneva, after Reverden's method, were used for everything except parietal sutures. One great advantage of catgut in these cases is its solubility, and the consequent non-requirement of removal with all its troubles.

By this method of Doyen's we obtain quick removal with little loss of blood, the peritoneal cavity is left absolutely intact, and therefore we cannot have the patient coming to us after convalescence complaining of the effects of peritoneal adhesions. The complete exclusion of the wound surfaces from the peritoneal cavity and deflection into the vagina renders the success of the operation much more probable even should infection and suppuration ensue. There is practically nothing beyond the affected parts removed, and only the apices of the flaps are treated as pedicles, hence there is very little sloughing, and if catgut be used there may be no sloughing at all. The ureters are placed in a better position as regards safety than by any other method, and the bladder is separated off the front of the uterine mass by the simplest procedure.

Doyen has performed this operation thirty-five times with one death, and judging from my own experience in a single case these figures will be upheld in cases of uncomplicated large myomatous growths of the uterus. Inflammatory complications in the pelvic viscera, and various pathological changes in the growths themselves will always upset the best methods.

I may say that Mr. Taylor performed the operation before I did, and that he very kindly asked me to assist him, so that I have seen three operations all of which recovered.

The biggest test of an operation is to turn it to personal application. And it seems to me that were I a woman suffering from a large myomatous uterus which was rendering my life unbearable and which was progressing unfavourably in size or symptoms, I should elect to have panhysterectomy performed by Doyen's method.

Letter to Editors.

THE ENLARGED CIRRHOTIC LIVER.

To the Editors of the BIRMINGHAM MEDICAL REVIEW.

Dear Sirs,

Let me first thank you for giving me so early a review of my book on the above subject in your October number.

But may I point out that your Reviewer quite mistakes the object of my work. He says: "In these two short papers Dr. Foxwell draws attention to the clinical fact that a cirrhotic liver is enlarged before it ultimately contracts, so that if the patient dies before the contraction takes place, the liver may be found enlarged at the autopsy."

There would be no need for any writing of mine to draw attention to such a "clinical fact"; for similar statements appear in most text-books. It is just because I believe it is *not* a clinical fact that I wrote my book.

What I believe about hepatic cirrhosis is this: Enlargement of the organ is the essential condition throughout the whole course of the disease however severe and prolonged this may be; not a mere premonitory symptom of ultimate contraction as your Reviewer and the text-books teach.

I am at a loss to see how I could be so misunderstood, for it seems to me that the following paragraph from the first page of my preface states my position with sufficient clearness:— "Clinically, the alcoholic, as well as the other forms, is characterised by an enlargement of the organ, those cases where diminution is noted *being quite the exception.* It is true that contraction, when it does occur, means an advanced stage of the disease; but even in the severest forms *enlargement remains the rule.*"

I would also ask your Reviewer to be good enough once more to look at pages 16 and 17, where similar statements occur. Moreover, I am hardy enough to think that the 160 cases of

which my book gives an analysis go some way towards proving the truth of my contention.

May I add that in the same number of your *Review* is a very valuable paper by Drs. Rolleston and Fenton based on 114 *post mortem* examinations of cirrhotic livers, which paper, they are kind enough to say, owed its initiation to my book. In it they more than bear out my contention, for they state, page 204, "The weight of the male livers is the same as that obtained by Dr. Foxwell, while that of the females (61·4 oz.) is considerably in excess of his figures (48·7 oz.), but has the advantage of being taken from a larger number of cases."

Yours truly,

22. Newhall Street. ARTHUR FOXWELL.

REPORTS OF CASES.

SOME CASES OF ACUTE SUPPURATIVE ARTHRITIS OF THE KNEE.

BY LEONARD GAMGEE, F.R.C.S.
ASSISTANT-SURGEON TO THE GENERAL HOSPITAL: SURGEON TO THE CHILDREN'S HOSPITAL, BIRMINGHAM.

The following are details of five consecutive cases of acute suppurative arthritis of the knee, which have been under my care.

Case 1. J. H., male, aged 8 years, admitted into the General Hospital on January 22nd, 1894. The treatment of this case was kindly entrusted to me by Mr. Barling. Three weeks before admission the patient had fallen on some broken glass, sustaining a punctured wound of the right knee joint. There rapidly ensued great swelling of the knee-joint, with redness, œdema, and great pain. On admission into the hospital the condition was as follows:—The skin over the joint and over the lower half of the thigh was red and œdematous, and the synovial cavity was distended with fluid. The patient had a high temperature, and any movement of the limb caused intense

pain. Under an anæsthetic four incisions, each two inches long, were made, one on either side of the distended synovial membrane at the upper end, and one on either side at the lower end. The joint was found to be full of pus, but no erosion of bone was felt. The pus had made its way from the synovial cavity up the muscular planes of the thigh, and so three more incisions were made in the lower part of the thigh, one in front and one on either side. The joint was washed out with 1 in 2000 mercurial lotion, large drainage-tubes were put in the incisions, and the limb was fixed on an Arnold's splint. For the first week the joint was irrigated daily. Subsequently the tubes were gradually shortened, and on May 4th the patient was discharged from hospital with the wounds soundly healed, a perfectly straight limb with no displacement of the tibia, and a knee-joint which allowed of movement through thirty degrees. The limb was kept in a plaster case for some two months after this.

Case 2. T. H., male, aged 8 years, a patient in the Jaffray Hospital suffering from tubercular hip disease. On November 25th, 1894, the patient was attacked with erysipelas, which spread over the whole right lower limb. On December 1st the right knee was painful and distended with fluid, the patient's temperature being 102°. On December 3rd, after an exploring needle had withdrawn pus from the joint, four incisions were made into the synovial cavity, each two inches long, two being above and two below the patella. A pint of pus was let out, but no erosion of bone was felt. The joint was irrigated and freely drained, and the limb was fixed on a Heron-Watson's splint. On January 3rd, 1895, pus was found to be accumulating in the supra-patellar pouch, and so a median longitudinal incision was made into the pouch. On March 3rd the joint was perfectly healed, there being firm fibrous ankylosis and a straight limb.

Case 3. C. P., male, aged 15 years, a patient in the Jaffray Hospital, suffering from fibrous ankylosis of several joints following acute rheumatism. On February 13th, 1895, the patient

was attacked with erysipelas, which spread over the right lower limb. On February 20th the right knee became distended with fluid, but there was not much pain. During the next few days the swelling and pain increased, so an exploring needle was put into the joint, and through it pus was withdrawn. On March 3rd four incisions were made into the joint and a pint and a half of pus evacuated, no erosion of bone being felt. The joint was irrigated and drained, and the limb fixed on a Heron-Watson's splint. On March 8th an incision was made into the supra-patellar pouch to drain an accumulation of pus there. On June 6th the joint was perfectly healed, but with firm fibrous ankylosis.

Case 4. H. S., male, aged 4 months, admitted into the Children's Hospital on February 10th, 1896. The only history obtainable was that five days before admission a swelling had been noticed over the lower half of the left thigh. On admission, there was a swelling over the lower half of the left thigh, the skin over it being hot and œdematous. The patient's temperature was 100°. On February 11th two incisions were made, one on the front and one on the outer side of the lower end of the femur, and some pus let out. The periosteum was not stripped from the bone, nor was any opening into the knee-joint found. The temperature dropped, and remained normal until February 19th, when it rose to 100°, and at the same time the knee-joint filled with fluid. On February 28th, as the swelling of the knee continued and the temperature had risen to 104·6°, four incisions were made into the joint as in Case 2, and a quantity of pus evacuated. There was no erosion of bone. The joint was irrigated and drained. The patient was discharged on May 1st with a perfectly healed joint, in excellent position, and allowing of movement through thirty degrees.

Case 5. R. H., female, aged 1 year and 9 months, admitted into the Children's Hospital on August 8th, 1896, suffering from effusion of fluid into the left knee-joint; duration, fourteen days. The temperature was normal. On August 11th the temperature rose to 101°, and the knee was more swollen. On

August 18th the skin over the outer side of the joint was red and œdematous, so four incisions, as in Case 2, were made into the joint, and four ounces of pus evacuated. The bone was not eroded. The joint was irrigated, drained, and the limb fixed on a Heron-Watson's splint. On September 21st the patient was discharged with a sound joint allowing movement through 45 degrees.

Remarks.—These cases are examples of acute suppurative arthritis arising from three distinct causes—viz., 1, a wound of the joint; 2, infection during erysipelas; and 3, acute epiphysitis; for this was probably the primary condition in Cases 4 and 5, the spread of the inflammation to the joint being secondary. The diagnosis in neither case presented any serious difficulty, and the treatment by free incision was clearly indicated. Free drainage of the knee-joint is best effected by four incisions—viz, one at the highest point and one at the lowest point of the swelling on the inner side, and one at each of the corresponding points on the outer side. Each incision should be two inches long at least, and through them the joint should be thoroughly flushed out and then two drainage-tubes of large diameter passed, one from the upper and inner opening to the lower and outer, and the other from the upper and outer to the lower and inner. One of the most serious complications to be dealt with is an escape of pus from the synovial cavity and its spread up the muscular planes of the thigh. Such a condition was present in Case 1, and here, consequently, additional incisions had to be made. The seriousness of this complication depends not only on the fact that the area of suppuration is so large, but also on the fact that during the after-treatment the cardinal principle of rest cannot be thoroughly adhered to; for when drainage-tubes extend so far up as the middle of the thigh, the limb is of necessity disturbed at each dressing, as the best of all splints for fixation of a suppurating knee, the Heron-Watson splint, cannot be used. During the after-treatment, careful watch should be kept for a collection of pus in the supra-patellar pouch; and if this takes

place, a free median incision on the front of the thigh into the pouch should be made. If the incisions, as described above, do not thoroughly drain the joint, the upper and lower openings on either side should be connected together, so that the synovial cavity is completely opened from end to end on each side. In a suppurating knee-joint there is always a great tendency to displacement backwards of the tibia with rotation outwards of the leg. This must constantly be guarded against, or, otherwise, there will be a most troublesome and permanent deformity. In neither of these cases was there any erosion of bone, and to this is to be mainly attributed the fact that in three of the five cases a movable joint resulted. In suppurative arthritis of the knee, amputation may be called for, the chief indication for it being very great bony and ligamentous distention; but so satisfactory is the treatment of such cases by free drainage and rest, that amputation should be performed only in cases of extreme severity.

PERISCOPE.

URINARY AND RENAL DISEASES.

BY PROF. R. SAUNDBY, M.D., F.R.C.P.

DIABETES.

Klemperer. *Regulatory Glycosuria and Renal Diabetes.*—The *Medical Week*, 1896, vol. iv., p. 259.

Zuntz has proved that phloridzine when injected into one renal artery causes glycosuria only from the corresponding kidney for at least half an hour, and Minkowski showed that when the kidneys are extirpated, the administration of phloridzine causes no increase of sugar in the blood; therefore phloridzine glycosuria must be regarded as an example of renal

diabetes, the presence of sugar in the urine being due to the kidneys having lost the power of keeping back the sugar in the blood. In man the ingestion of phloridzine is also followed by glycosuria without hyperglycæmia, while out of ten patients suffering from granular kidneys, seven presented no glycosuria after the administration of phloridzine Jacoby, of Strasburg, has observed glycosuria in rabbits fed on carrots when diuresis was produced by the administration of caffeine; and an Austrian physician has seen diuresis caused by digitalis accompanied by glycosuria. Klemperer thinks the condition exceedingly rare in man, as he has only seen one case—that of a workman with interstitial nephritis and slight glycosuria, not increased by a diet largely composed of carbo-hydrates or diminished by a diet exclusively of meat.

Spitzer, W. *Die Zuckerzerstörende Kraft des Blutes und der Gewebe.* —Eine Kritik der Lépine'schen Diabetes-theorie. *Berliner klin. Woch.*, xxxi., 42.

Spitzer has sought to test the truth of Lépine's theory of diabetes. He found that the blood of men and animals possesses a slight sugar-destroying property, while that of animals made diabetic by phloridzin, and of diabetic men, acts no more powerfully in the same way. Nor could he obtain any increase of the diastatic ferment in diabetics. But the sugar-destroying action is not only a property of the blood, but a general property of protoplasm which is dependent upon the life of the cells. The presence of oxygen is necessary for the destruction of grape sugar, and the destruction is apparently an oxidation process, but not, as Lépine thinks, a ferment process of decomposition with hydration.

Kaufmann. *Observations upon Animals rendered Diabetic by Extirpation of the Pancreas.*—The *Medical Week*, 1896, pp. 117 and 129, 141.

Professor Kaufmann, of Belfort, finds that total extirpation of the pancreas is followed by glycosuria, persisting during even prolonged fasting, and only disappearing just before death. The glycosuria is increased by food, but disappears during fever

if the animal is deprived of food. Diabetic animals lose weight during inanition much more rapidly than healthy animals; thus the latter lost from 160 to 175 grammes, the former from 250 to 500 grammes daily. Diabetic animals absorb as much oxygen, eliminate the same quantity of CO_2, and emit the same amount of heat as animals under normal conditions. They differ in the fact that diabetic animals excrete more nitrogen as well as sugar, and consequently destroy more albumen. Less sugar is formed from fat than in the normal state, and less is consumed in the body. The total quantity of sugar produced is nearly the same, in diabetic animals varying between 390 and 504 milligrammes, and in normal animals between 415 and 675 milligrammes per kilogramme of body weight per hour. In pancreatic diabetes the destruction of sugar falls, so that instead of being equivalent to 1, it varies from ·68 to ·77. The urine frequently contains more sugar than can be attributed to the destruction of albumens as estimated from the urea output.

Kasahara, M. *Ueber das Bindegewebe des Pankreas bei verschiedenen Krankheiten.*—*Virchow's Archiv*, Bd. 143, p. 111.

Obici. *Bull. del. sc. med. di Bologna*, ser. 7, vol. iv.

Kasahara points out that interstitial pancreatitis is met with apart from diabetes in syphilis, arterio-sclerosis, fibrosis of liver, and alcoholism, so that it cannot be accepted as a cause of diabetes. Obici takes the same view, and relates two parallel cases of diabetes, in one of which the pancreas was absolutely healthy, in the other the seat of advanced interstitial inflammation. He also cites two cases of interstitial pancreatitis and one of carcinoma of the pancreas with complete destruction of the gland, in which there was no glycosuria.

Caroë, K. *Mortalité par diabète en Danemark.*—*Revue de Médecine*, 1896, p. 521.

These statistics refer only to the towns of Denmark, and show a very great increase during the period given (1860 to 1894). Professor Lépine has analysed and condensed the figures as follow:—

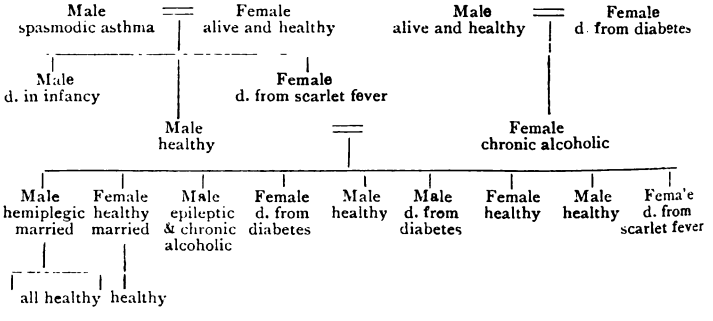
Annual mortality per 100,000 inhabitants.

	In Copenhagen.	In Provincial Towns.
1860-1869	3	less than 2
1870-1879	nearly 5	nearly 4
1880-1884	7	„ 5
1884-1889	8	between 6 & 7
1890-1894	8	nearly 7

Professor Lépine believes that this enormous increase cannot be altogether explained away by improved diagnosis, etc. It is the rule in all the cities of Europe, and he asks for an explanation if anyone can throw light upon it.

Given, J. C. M. *Diabetes and Neurotic Inheritance.—Lancet*, 1896, i., p. 1425.

Dr. Given publishes the following interesting pedigree to illustrate the connection between diabetes and other neuroses.



Smith, A. H. *Diabetes among Locomotive Engineers.*—The *Medical Week*, 1896, p. 189.

In the course of a discussion at the New York Academy of Medicine Dr. A. H. Smith spoke of the frequency of diabetes amongst locomotive engineers, and stated that he had been told that the records of their insurance department show it to be about seven times more frequent among this class of workmen than among others. He attributed the fact to the constant jarring to which they are exposed, to the unceasing strain under which they work, and possibly to the changes of temperature they have to endure. [Enquiries made from Mr. Oliver Pem-

berton, Mr. Herbert Page, and Dr. Bond, who have had great experience of railway servants, showed that they were quite unaware of any such prevalence of diabetes amongst English locomotive drivers; but the rate of mortality from diabetes in English drivers and firemen in the L.N.W.R. is 151 per 10,000 deaths, while I estimate that the deaths from the same cause among the general population between the ages of 30 and 60 is about eighty. This seems to show some increase, but falls a long way short of Dr. Smith's seven times!—Rep.]

Marie, P. *Some Cases of Diabetes Mellitus—arthritic, conjugal, pancreatic, and nervous—considered from a clinical point of view. Surgical operations on diabetic subjects.* The *Medical Week*, 1896, p. 13.

In the course of this somewhat discursive but very interesting lecture, Dr. Marie showed two patients—husband and wife—suffering from diabetes, and referred to the various observations of this association made by Lecorché and others, and to the theories that have been advanced to explain it—viz., (1) identity of circumstances, food, etc., producing a similar result in a married pair; and (2) contagion. He expressed himself as disposed to favour the second view, and stated that no ground for the first existed in the present case, as the husband's work took him a great deal away from home. He also quoted some cases published by Teissier, in one of which a laundress who had washed linen for a man and his little daughter, both diabetic, became diabetic herself. In another, the mother was first diabetic, then the son, then the cook who had washed pocket-handkerchiefs for her master, and lastly, a sewing woman who had been in the habit of going to the house to mend linen and help the cook.

Oppler, B. and Külz, C. *Ueber das Vorkommen von Diabetes mellitus bei Ehegatten (Uebertragbarkeit des Diabetes mellitus)—Berliner klin. Wochenschr.*, 1896, p. 583 and 612.

After referring to the paper in the same journal in 1890, in which Schmitz raised the question whether Diabetes was transferable, Oppler and Külz quote a passage from Reil, written in

1805, in which he relates how the wife, young and healthy, of a diabetic patient became herself diabetic, but was cured, and he mentions that Kampf attributed it without ground to a peculiar miasma. Seegen and Betz have observed these cases, and Bouchardat, though not admitting the possibility of contagion, stated that he had met with ten examples of sugar in the urine of married couples. Senator thinks that it is either a coincidence or both have been exposed to similar conditions which have provoked the disease. Instances have been recorded by Hertzka, Benzler, and Ebstein. The last failed to find any germs or organisms in diabetic blood. Debove, Lecorché, Rendu, E. Labbé, Gaucher, Dreyfous, Letulle, Gauraud, have also observed cases of conjugal diabetes. Rémond regards the occurrence as merely a coincidence. Unschuld has published a case where a man developed diabetes after pneumonia, while his wife had gouty swelling of the hand and sugar in the urine. The authors quote also Teissier's case (see above) and his suggestion that such occurrences may be due to the transmission of certain organisms "capable of transforming glycogen in the blood of the infected subject," and he regards the saliva and urine as the more probable means by which these organisms pass. Charrin and Carnot have succeeded in a few cases in causing true diabetes by injecting organisms into the pancreatic duct, and microbes may affect the liver, the blood, or the nerve centres. They remark on the absence of any reference to the subject in the work of such masters as Rollo, Pavy, Prout, Dickinson, Griesinger, Traube, Cantani, etc. In the practice of the late Prof. E. Külz, which embraced 900 cases of diabetes, there were 10 examples of conjugal diabetes which they relate, and they find that the record of all published cases now contains 47 married couples out of 4389 diabetics, or about 1·08 per cent. They analyse their ten cases and show that with one exception they presented predisposing causes on both sides, such as nervous heredity, obesity, syphilis, malaria, etc., and they see in them therefore little to support the theory of contagion. They think in all cases the personal and family history should be

stated if we are to judge fairly of the facts and gain a right solution of this question.

Ebstein, W *The Relationship between Diabetes Mellitus and Epilepsy.—Medical Week*, 1896, vol. iv., p. 241.

Professor Ebstein believes that glycosuria and confirmed diabetes are very rare complications of epilepsy, but diabetes, epilepsy, and mental disease may occur in various members of the same neuropathic families. In true diabetes mellitus epilepsy may occur either in consequence of the cerebral lesions which may develope in diabetes, or in consequence of the disturbance of the intra-organic exchanges (toxæmia). In Finlayson's case, which appeared to belong to the latter group, the urine gave no ferric chloride reaction; and convulsions are rarely met with in association with diabetic coma, although G. W. Jacoby has recently reported three cases of diabetic epilepsy which he attributes to acetonæmia. In some cases glycosuria merely follows each convulsive attack; in others it is constant. After ordinary epilepsy, in spite of the statement of some early observers, glycosuria does not occur. The two diseases may co-exist by coincidence, as after an apoplectic attack, of which an example is given; or in neuropathic persons with hereditary predisposition to both.

Nonne, M. *Ueber Poliomyelitis anterior chronica als Ursache einer chronisch-progressiven atrophischen Lähmung bei Diabetes mellitus.—Berliner klin Woch.*, March 9th, 1896.

Nonne has recorded the case of a diabetic lady, aged 64, who began to suffer from progressive muscular atrophy affecting the upper and lower limbs. Death occurred from broncho-pneumonia just when bulbar symptoms were supervening. The autopsy showed chronic degeneration of the cells and fibres of the anterior cornua from the cervical to the lumbar parts of the cord, best marked in the cervical region; the anterior nerve roots were secondarily affected.

Graves, F. *Epileptiform Attack in Diabetes followed by recovery.—Brit. Med. Journal*, 1896, i., p. 970.

Mr. Graves reports an interesting case of a woman, aged 72,

the mother of several children, who was found in an epileptic condition, foaming and convulsed, afterwards maniacal, raving, and struggling. The convulsions then returned, and were followed by coma lasting thirty-six hours. Temperature 103°. She had been troubled recently with eczema and boils. Urine 360 oz., sp. gr. 1035, sugar 32 grs. per oz.; only a trace of albumen. Ferric chloride reaction well marked. She was treated by pilocarpine injections and morphine; later on by diet and antipyrin, and in a month's time the quantity of urine was only 100 oz. and the sugar 2 grs. per oz.

Bussenuis. *Fibrinöse Pneumonie als Complication des Diabetes mellitus.—Berliner klin. Woch.*, April 6th, 1896.

The author, writing from Senator's Clinic in Berlin, says that the occurrence of croupous pneumonia in diabetes has received less attention than the subjects of tuberculosis and gangrene of the lung. As a rule, sugar does not disappear entirely from the urine. The prognosis is bad, but not hopeless, three out of seven cases in Senator's private practice having recovered.

Boulting, W. *Fatal Coma in a case of unsuspected Glycosuria in a young subject.—Brit. Med. Journ.*, 1896, i., p. 270.

Mr. Boulting reports the case of a bank clerk, aged 25, who had an attack of influenza in February, 1895, from which he was supposed to have recovered After some weeks' ill-health in which he complained of lassitude and want of strength, without noticeable polyuria, hunger, or thirst, he was found comatose in bed on Christmas morning (1895). His urine contained sugar and acetone; pulse 90, compressible, some cyanosis, respirations 30, shallow, pupils very markedly contracted, skin dry. The theory of opium poisoning was advanced, but no poison or medicine bottles could be found, and the stomach contents gave no reaction with neutralised solution of ferric chloride.

Koenig, Fr. *Ueber diabetischen Brand.—Berliner klin. Wochenschr.*, 1896, p. 553.

Koenig remarks on the frequency with which inflammations in diabetes run on to gangrene, and he believes this depends

upon the presence of arterio-sclerosis. With the supervention of gangrene the sugar often increases and the patient begins to wander, to lose all appetite, and to become comatose. Roser recommends that strict antidiabetic should be enforced, and the gangrenous part be kept dry, pus let out, necrosed parts removed, and an antiseptic dressing applied. But Koenig believes that where amputation is possible it is often most useful. and he urges it in face of extending inflammation in spite of energetic antiseptic measures, with increasing fever, or when the sugar keeps high and coma appears threatening. He relates the case of an old man of 70, who was becoming comatose and the gangrene extending; after amputation of the thigh he recovered and lived for eight years. A man aged 40 had a gradually extending gangrene of the left foot, his temperature was 40°, he had no appetite, constant hiccough. and the sugar was never under 4 per cent. Amputation removed all symptoms, and there was only a trace of sugar. He made a good recovery. In all operations the strictest antiseptic precautions should be observed.

James, A. *The Blood in Diabetes.*—Edinburgh Medico-chirurgical Society. *Lancet*, 1896, i, p. 714.

Dr. James asserts that out of 13 cases of diabetes the corpuscles were over six millions in 5, over five millions in 5, over four millions in 2, and over three millions in 1. The hæmoglobin was over 100 per cent. in 3 cases, over 60 per cent. in 8, and over 50 per cent. in 2. The specific gravity of the blood was not increased. He attributes this increase, which he believes is certain, to an effort of nature to increase the oxidising power of the blood.

Hanot, V. *Diabète bronzé.—Brit. Med. Journal*, 1896, i., p. 206.

Professor Hanot, who originally described this condition in 1882, writes to review the contributions which have since been made to the subject. He expresses his agreement with the opinion of Marie that the disease is a distinct morbid entity, and not simply a complication of diabetes, but its pathogenesis

is still obscure. Its symptoms are general signs of diabetes, with abundant glycosuria, pigmentation of the skin, most marked on the face, limbs, and genital organs, hypertrophy of the liver and spleen. The onset is often sudden; wasting, diarrhœa, and œdema of the lower limbs are common; there is rapid loss of strength, and death occurs from coma or pneumonia.

Triboulet, H. *Le foie chez les diabétiques—Revue de Médecine*, 1896, p. 133.

The author desires to support Dr. Glénard in attacking the prevalent opinion that the liver is normal in true diabetes; he admits that the reports of autopsies are not very abundant, but so far as they go, they justify him in saying that the liver is generally large, cirrhotic, and often pigmented. Clinical observations also, he contends, show that the liver is frequently enlarged. Diabetes occurs frequently in people who have been great eaters, who are obese and have dilated stomachs; it is often associated with gall stones. Dr. Glénard thinks the lesions in the liver are intermediary in the production of diabetes.

Daly, E. O. *Sugar in Urine of very low specific gravity.—Brit. Med. Journal*, 1896, i., p. 1312.

Dr. E. O. Daly records a case in which sugar was found in the urine although the sp. gr. was only 1002; it was in a case in which glycosuria had been present for some months.

Roberts, W. *On the Verification of Sugar-testing in the Urine.—Practitioner*, 1896, p. 11.

Sir William Roberts recommends in cases of doubt, where a slight trace of sugar only may be present, to pass the urine three times through animal charcoal, and then to a quarter of an inch of Fehling's solution in a test-tube to add the filtrate up to two inches and boil the upper stratum. He believes that all the normal constituents of urine which possess reducing power are removed in this way.

McDonald, M. *On the Detection of small quantities of Sugar in the Urine.—Lancet*, 1896, vol. ii., p. 814.

Dr. McDonald, referring first to Sir William Roberts' plan of

filtering the urine through animal charcoal, points out that this method was proposed some years ago by Seegen, who, however, used not the filtrate but the washings of the charcoal, in which he believed most of the sugar to be retained; and Dr. McDonald confirms this view. He believes the following method is most applicable for clinical purposes :—Half a drachm of urine, half a drachm of saturated solution of picric acid, quarter of a drachm of liq. potassæ, and nine drachms of water are put in a long narrow test-tube, and the liquid heated uniformly just short of boiling; then the upper part is boiled for two minutes. At first the red colour disappears in great part (kreatin reaction), but if sugar is present it darkens again as the boiling is continued, which never happens in normal urine. The presence of albumen does not interfere with the test.

Spanbok and Steinhaus. *On the Coincidence of Temporal Heteronymous Hemianopsia with Diabetes Insipidus.—Recueil d'Ophthalmologie*, No. 4.

The coincidence of polyuria has been noted in 11 out of 50 cases of heteronymous hemianopsia, and the opinion has been hazarded that this is due to the extension of the lesion in the brain so as to involve both centres. Spanbok and Steinhaus dissent from this view of the common origin of these diseases. Temporal homonymous hemianopsia is the result of a lesion or compression of the anterior or posterior angle or even of the centre of the optic chiasma, while polyuria is caused by a lesion of the floor of the fourth ventricle between the nuclei of the pneumogastric and auditory nerves, or in some other part of the medulla. These centres are too widely separated to be acted upon by a common localised lesion. Moreover, careful examination of the reported coincidences disposes, in their opinion, of ten out of the eleven cases.

Fish, F. W. *The Treatment of Diabetes insipidus by Supra-renal Tabloids.—Brit. Med. Journal*, 1896, i., p. 1386.

Dr. Fish reports a case of a woman aged 45 suffering from diabetes insipidus; the duration of the disease is not stated, but

we are told that there was no history of injury or evidence of cerebral tumour. She passed 394 ounces of urine in twenty-four hours, and weighed 10 stone. After treatment for twenty days with half and afterwards with a whole supra-renal tabloid (Burroughs and Wellcome's) at bedtime she expressed herself as being much better, but her weight had fallen to 9 st. 5 lbs. and the urine was 340 ounces.

BRIGHT'S DISEASE.

Arnaud, F. *Recherches sur l'urologie du phosphorisme chronique.—Annales d'Hygiene*, xxxv., 3.

Arnaud has studied the urology of the workpeople engaged in making lucifer matches at Marseilles. Among those engaged in making the boxes he found albumen present in 39·31 per cent.! but in those working in phosphorus in 94·77 per cent. He concludes from this that phosphorus has an injurious effect upon the kidneys. Phosphorus was present in the urine, revealing itself by a garlic odour, by blackening with silver nitrate solution, but there was never phosphorescence.

Posner, C. *The Etiology of Nephritis.—Deutsche med. Woch*, 1895, No. 40.

The frequency with which nephritis owes its origin to some infectious process is now well known, and it has been shown that organisms pass readily from the intestine into the circulation. Posner says that simple ligature of the rectum is followed by inflammatory changes in the kidneys, and injection of the bacterium coli into the circulation causes true nephritis. The healthy kidney repels the attacks of bacteria, but its resistance is diminished by injection of alcohol or by poisoning the animal with chromium.

Jacobi, A. *Nephritis of the Newly-born.—New York Medical Journal*, January 18th, 1896.

In this excellent address Dr. Jacobi recalls a number of facts which are by no means threadbare. He points out the frequency with which nephritis may occur in young children from the infectious processes including vaccination, from gastro-

intestinal affections, from failure of the circulation, from exposure of the skin, sudden changes of temperature, as from too hot a bath, from structural peculiarities in the blood-vessels, from uric acid infarctions, or infarctions of pigment or blood. In connection with the last he insists upon the importance of giving young infants food well diluted with water. Nephritis may also be set up by bile in the jaundice of the newly-born, and he relates one case in which the cause was chlorate of potash poisoning from the too free application of this salt by a midwife to the mouth of the child.

Ajello and Paraveandalo. *The Pathogenesis of Uræmia.—Lo Sperimentale*, an. 49, fasc. 4.

Ajello and Paraveandalo believe that uræmia is caused by the absence or deficiency of an internal renal secretion, and in support of this view they assert (1) that unilaterally nephrectomised animals die in from eight days to eleven months with albuminuria and cachexia; (2) if injected with renal juice prepared after the method of Brown-Séquard and Dr. Arsonval, they live in good health in spite of the loss of one kidney; double nephrectomy causes the death of the animals in from four to forty-eight hours, but renal juice prolongs life to four days or more. Renal grafts produced negative results. [I need hardly remind my readers how much these statements are at variance with the results of modern renal surgery.—Rep.]

Bradford, J. R. *Results following the Experimental Removal of Portions of the Kidney.—Path. Trans.*, vol. xlvi., p. 236.

Dr. Bradford has experimented on dogs by removing first a wedge from one kidney and some weeks afterwards extirpating the sound kidney. After the first operation the quantity of urine was increased, and its specific gravity lowered, but any increase in the urea depended upon a more liberal nitrogenous diet. After the removal of the sound kidney the results must be divided into two groups: in the first the animals remained well, but the quantity of water was greatly increased; all these animals had retained about one-third of their renal tissue. In the second group, in addition to the greatly increased flow of urine

there was progressive emaciation and weakness, the animals only surviving the operation a few weeks. These animals had retained only about one quarter of their total kidney tissue. The symptoms in the fatal cases were thirst, weakness, emaciation, fall of body temperature of 5° to 6° F.; the urine was increased to three or four times its normal amount, with a great excess in the daily output of urea, but no sugar or albumen. The animals appeared to die from failure of respiration. No vomiting, convulsions, or coma were observed, but diarrhœa with offensive stools was occasionally seen. The amount of urea was generally half as much again as normal. Indican was present exceptionally. He believes these results depend strictly upon the amount of kidney tissue removed; division of the renal plexus did not cause them, nor did the removal of a wedge from each kidney. He thinks they may be explained (1) by the retention in the body of some normal urinary constituent other than urea, or (2) by the absence of some internal secretion of the kidney which exercises a conservative effect upon the tissues. Dr. Bradford inclines to the latter view, but admits that it can only be proved if by grafts of pieces of kidney, or injection of renal extract, the emaciation can be arrested or diminished. He admits too that where the ureter was clamped without the kidney being removed the fatal result was as rapid as when the kidney was removed. In any case these experiments widen our view of the results of renal lesions, and confirm the fact, already often enough observed clinically, that a sufficient amount of urea may be excreted by very defective kidneys.

Boyer et Josni. *Communication sur la pathogenèse de l'œdème.—Compt. rend. hebd. de la Soc. de Biol.*, 1895, No. 27.

Boyer and Josni have found, in accordance with the results of many previous observers, that ligature of veins is not followed by œdema of the part, but if, in addition, a local injection is made of a culture of the proteus bacillus, enormous œdema developes, and they suggest that some similar agency may be at work in the production of the dropsy of human pathology.

Huchard. *Albuminuria and Hyperacute Uræmia determined by the application of a blister.*—The *Medical Week*, 1896, p. 152.

Dr. Huchard reports a case of acute nephritis with anasarca, intense dyspnœa, convulsions, and nearly complete amaurosis, associated with almost absolute anuria, resulting from the application of a fly-blister, "six square centimetres in size," to the epigastrium of a girl of 18 suffering from gastralgia. He says this shows the dangers of cantharides, which has been abandoned in Austria and Germany and ought to be given up everywhere. Dr. de Crésantignes mentioned two fatal cases of nephritis caused by the application of cantharides blisters, and the danger of their use was affirmed by Drs. Mathieu and Bardet; but Dr. Crequy pointed out (which would be probably endorsed by most English practitioners) that they may be used with safety if not allowed to remain on too long; and Dr. Ferrand considered blisters too useful to be abandoned. M. Adrian recommended the use of blistering fluid as much safer than blister-plasters. M. Saint Yves Ménard said that in veterinary practice the utility of blisters was unquestionable.

Ballet, G. *On Uræmic Word-deafness.*—The *Medical Week*, 1896, p. 301.

Professor Ballet presented a woman, aged 53, who was unable to understand what was said to her, although she could read and write and execute written orders perfectly. She spoke fairly well, but her phrases were irregularly formed and incorrect; she substituted certain words for others, and repeated the same word uselessly several times. Her illness began by sudden loss of consciousness when she was in apparent good health, and she remained semi-comatose for four or five days. After recovering for a day she had another attack, and on regaining consciousness she was unable to walk, talk, or understand what was said. When she came under Professor Ballet's care the motor symptoms had disappeared. He refers to ephemeral aphasia caused by migraine, hysteria, infective disorders—*e.g.*, pneumonia, poisons, *e.g.*, tobacco, gout, and diabetes. This

patient's urine contained a considerable quantity of albumen, and he connects the amnesia with the renal condition, without attempting to define the exact nature of the lesion, although he indicates that its seat is probably the first temporal convolution.

Lea, Arnold W. W. *Fatal acute Nephritis supervening in Cystic Kidneys.*—Pathological Society of Manchester. *Lancet*, 1896, i., p. 486.

Dr. Lea relates the case of a multipara, admitted with septicæmia following a miscarriage, in whom the urine was very scanty, bloody, and contained epithelial casts. She died of uræmia. The autopsy showed enlarged congenitally cystic kidneys, upon which an acute parenchymatous and interstitial inflammation had supervened in consequence of the septicæmia. But for this accident the patient might have lived many years; and it is noteworthy that she had passed safely through many pregnancies.

Du Cazal. *Tincture of Cantharides and Albuminuria.*—*Gaz. hebd. de méd. et de chir.*, October 26th, 1895.

M. du Cazal strongly supports the recommendation by Lancereaux to use tincture of cantharides in the treatment of nephritis. He records five cases, three of which were consecutive to pneumonia and two to scarlatina; in four out of the five the treatment is said to have resulted in complete recovery. [It is well known that the majority of these cases of nephritis occurring as sequelæ to infectious processes, if taken in time, and under favourable circumstances, make a good recovery. Some years ago the reporter tried the effect of cantharides systematically in cases of nephritis, and came to the conclusion that it exercised no specific effect in controlling the excretion of albumen.]

Huchard. *Theobromine as a Diuretic in Cardiac and Renal Disease.*—*Lancet*, 1896, i., p. 205

M. Huchard, in a communication to the Société de Thérapeutique, has greatly praised the diuretic effects of theobromine in heart failure, associated cardio-vascular disease, associated cardiac and renal disease, and in interstitial nephritis. It is a

direct diuretic acting by stimulating the renal epithelium. He gives from three to five grammes daily (45 to 75 grains) in half-gramme (5 grain) doses repeated as often as may be required. He has seen it succeed where caffeine and digitalis have failed. Salicylate of theobromine is sold under the name "Diuretin," and being readily soluble is more easily administered than theobromine, which M. Huchard gives in cachets; it appears to possess all the good qualities which M. Huchard claims for the simple alkaloid.

Askanazy. *Diuretin in the treatment of Cardiac Asthma and Angina Pectoris* —The *Medical Week*, January 3rd, 1896, vol. iv., No. 1, p. 9.

Dr. S. Askanazy, assistant in Lichtheim's clinic at Königsberg, has recorded the good effects of diuretin (salicylate of sodium and theobromine) in ten cases of cardiac asthma or angina pectoris associated with renal or valvular disease. The effect was not, as a rule, permanent. The dose was from 45 to 60 grains daily, and he thinks the latter amount should not be exceeded. He attributes the result to a tonic effect on the heart.

Vintras, L. *On the clinical value of Diuretin.—Lancet*, 1896, vol. i., p. 1132.

Dr. Vintras thinks diuretin a valuable therapeutic agent in those cases of kidney disease which are secondary to lesions in other organs, and the renal epithelium is especially affected. He gives five cases to illustrate its effects; it was very useful in a case of cardiac and renal dropsy, less so in a second case, and useless in one of cirrhosis of the liver and in two cases of advanced chronic nephritis with pronounced anasarca.

Rosenfeld. *The treatment of the Uric Acid diathesis.*—Congress of Medicine in Wiesbaden. *Lancet*, 1896, i., p. 1323.

Professor Rosenfeld advocates the treatment of the uric acid diathesis by the administration of urea, which increases the solubility of uric acid. The daily dose is from 75 to 300 grains. He counsels abstinence from butchers' meat.

Klemperer, G. *Zur Behandlung der Lebercirrhose.*—Harnstoff als Diureticum.—*Berlin. klin. Woch.*, 1896, p. 6.

Klemperer doubts the advisability of tapping early in ascites from liver cirrhosis, and has often seen ill effects from the use of calomel and digitalis. He was therefore led to try urea as a diuretic, and gives two cases of cirrhosis of the liver in which this drug was used in combination with purgative doses of senna. The daily quantity of urea varied from 10 to 20 grammes (150 to 300 grains), given in divided doses dissolved in water every hour. Its taste was not objected to, and it caused no disturbance of the digestive organs. It would not be prudent to use it when the renal epithelium is seriously defective.

Friedreich, W. *Ueber die diuretische Wirkung des Harnstoffs.*—*Berliner klin Woch.*, 1896, p. 370.

Friedreich, of Budapest, claims to have published a paper in a Hungarian medical journal in 1892 on the diuretic action of urea, and to have suggested its use in medicine on the ground of its safety and utility where the kidneys are healthy, as in cardiac and hepatic dropsy and inflammatory exudations, etc. Since then he has used it in doses varying from 2 to 12 grammes (30 to 180 grains) daily, and satisfied himself of its value. He thinks had he used larger doses at first, he would have got more pronounced diuresis.

MISCELLANEOUS.

Monro, T. K. *Incontinence of Urine inherited by an entire family from their father.*—*Lancet*, 1896, i., p. 704.

The family described by Dr. Monro consists of five girls and one boy; all suffer from incontinence of urine by day as well as by night; one girl and the boy suffer from fits. The father was troubled with nocturnal incontinence until he was a big lad; his brother was free from the trouble, and his family of seven children are unaffected.

Redmond, T. O'C. *Nocturnal Incontinence of Urine.—Brit. Med. Journal*, 1896, i., p. 1089.

Mr. Redmond reports an obstinate case of nocturnal incontinence of urine, in an adult, cured by the simple expedient of setting an alarm clock to wake him every three hours, when he got up to make water. He also took iron, strychnine, and dilute phosphoric acid.

Dickinson, W. Lee. *Solitary Kidney.—Path. Trans.*, xlvi., p 80.

Dr. Lee Dickinson has reported an unusual form of solitary kidney; there was no kidney on the right side, but the left kidney resembled two kidneys joined longitudinally, with two separate hila and two ureters which entered the bladder normally.

Willett, E. *Cases of congenital cystic Adenoma and of carcinoma of the kidney.—Path. Trans.*, xlvi, p. 86.

Mr. Willett has recorded two cases of malignant disease of the kidney. The first occurred in a child of 10 months, who died from recurrence eleven months later. The growth was a glandular carcinoma according to some, and a cystic adenoma in the opinion of others. The second case was removed in 1893 from a young man of 19, who made a good recovery and had remained well; its structure was carcinomatous, and it weighed two pounds.

Voelcker, A. F. *Primary Carcinoma of the Ureter.—Path. Trans.*, xlvi., p. 133.

The patient was admitted with hæmaturia, lumbar pain, loss of appetite, enlarged nodular and tender liver, and some resistance to palpation in the left iliac fossa. He rapidly emaciated, and died in a few weeks. The liver was infiltrated with a pale soft pus growth. The left kidney was small and hydronephrotic; in the lower two inches of the ureter was a delicate villous growth projecting into its lumen, and outside a mass as large as a cherry adhering to the pelvic brim. Microscopically the growth was a villous carcinoma, and the secondary deposits in the liver had a very similar structure.

Monro, T. K. *A rare Morbid Condition of the Urinary Bladder (Fibro-myomatous change).—Journ. of Path. and Bacteriol.*, iii., p. 144.

Dr. Monro reports a very remarkable case of fibro-myomatous thickening of the wall of the bladder, causing hydro-nephrosis and great dilatation of the ureters. The patient, a man aged 29, died after an ineffectual attempt to relieve him by surgical means. The urine was decomposing and highly albuminous. He had been ill for two years, but it is believed that the condition of the bladder was congenital, though possibly it had undergone development as the patient grew up.

Tuffier. *Intermittent Hydronephrosis due to Kinking of the Ureter.*—The *Medical Week*, 1896, p. 205.

Prof. Tuffier relates an interesting case of intermittent hydronephrosis in which each refilling of the sac was preceded by an attack of pseudo-renal colic, with pain radiating into the testicle. He refers to similar attacks which occur in neurasthenia and are followed by a copious excretion of water, but they are merely cases of nephralgia, and can be differentiated by the absence of tumour. When such an intermittent hydronephrosis occurs in a movable kidney and the kink can be straightened out the ideal treatment is fixation of the organ in its normal place; but this is not always possible. It has been proposed to divide the ureter and suture it to the most depending part of the sac. Incision or extirpation are needed where the organ is infected. In this case total nephrectomy was performed, and the cause of the kink was discovered to be that the ureter was bent over an artery and a vein which were connected by a fibrous band with the upper vessels of the renal pedicle and effectually prevented the reduction of the kink.

Reid, W. L. *A case of Large Tumour of the Kidney, removed by Abdominal Section.—Glasgow Med. Journal*, 1896, vol. xlv., p. 226.

Dr. Reid's case was that of a young woman aged 28 who had a large hard lobulated tumour in the abdomen supposed to be uterine. On opening the abdomen the tumour was found to be

covered by peritoneum, which was incised and the tumour enucleated, a pedicle being tied and cut on the right of the middle line, and about the level of the last dorsal or first lumbar vertebra. In the pedicle stump some brownish tissue was noticed, and on examining the tumour it was found that this was the right kidney which had been cut through and was embedded in the tumour. The piece of kidney was removed from the pedicle. The uterus and ovaries on examination proved to be normal. The patient made a good recovery. The urine was rather scanty and of high specific gravity, but otherwise normal. The tumour was a spindle-celled sarcoma growing from the interstitial tissue beneath the capsule or from the walls of the intercapsular lymphatics.

Newman, D. *Cases of Primary Cancer of the Kidneys — Glasgow Med. Journal*, 1896, vol. xlv., p. 179.

Dr. Newman has recorded two cases of primary cancer of the kidney. In the first a man, aged 56, had suffered for ten years from a dull, aching pain in the left loin, aggravated by any sudden movement of the body. Six months after the pain began he noticed that the urine contained blood. After about a year the symptoms disappeared under treatment, and were in abeyance for three years. As both kidneys were diseased Dr. Newman did not advise an operation. A year later the man was greatly emaciated, pale, and weak; the hæmaturia was profuse, the pain very severe and lancinating in character, and a smooth, solid swelling about twice the size of the kidney could be made out. Two years later he died, and the left renal pelvis was found to contain six oxalate of lime calculi, while the upper half of the kidney was occupied by a carcinoma. In the second case the patient during life had complained of symptoms suggesting acute tuberculosis; there was a cancerous tumour of the kidney as large as a cricket ball, and nodules of various size were disseminated through almost all the organs and upon the serous surfaces, the pancreas and spleen alone being free from secondary formations. The growth appeared to originate in the tubular epithelium, and often remained enclosed within

the basement membrane of the tubules. He thinks operative interference affords a fair prospect of success, as out of 110 nephrectomies for malignant disease 46 died from the operation, 22 died from metastases or recurrence, and 42 were said to be cured. While not accepting the last statement in its entirety, the operation must have prolonged the lives and relieved the sufferings of a considerable proportion of these patients.

Harrison, R. *A contribution to some forms of Albuminuria, associated with Kidney Tension, and their Treatment.—Lancet*, 1896, i., p. 18.

Mr. Reginald Harrison suggests that there are certain cases of intense congestion of the kidneys in which benefit might be obtained by surgical treatment, and he records certain cases in which incision of the kidney made with the view of exploration for calculus, &c., has been followed by disappearance of albuminuria, although no calculus could be detected, but it is difficult in the present state of our knowledge to lay down any rules by which we may imitate these good results, which seem to have been of the nature of happy accidents.

Eustace, M. *Long-continued Suppression of Urine.—Brit. Med. Journal*, 1896, i., p. 147.

Dr. Eustace reports from the Church Missionary Society's Hospital at Quetta, Baluchistan, the case of a woman admitted for a malignant ovarian tumour, which did not admit of removal. She stated that for twenty-one days she had passed neither urine nor fæces. On the third day after admission she was tapped, and for a week after admission her bladder remained empty and her bowels were not moved. On the eighth day after admission she passed about a teaspoonful of urine, and on the following day her bowels were slightly moved. After that she continued to pass a little urine daily, a few drachms at a time. There were never any uræmic symptoms.

Bazy. *The Etiology, Diagnosis, and Treatment of Pyelo-nephritis.*—The *Medical Week*, 1896, p. 163.

Dr. Bazy believes, that although experiments on animals have shown that it is possible for coloured fluids to penetrate into the

ureter and even to reach the renal pelvis, it is more than doubtful whether it is possible in man for bacteria to ascend from the bladder to the kidney by this channel. He prefers to believe that the infection of the kidney occurs through the circulation, the possibility of which has been proved by Bouchard. Retention of urine in the renal pelvis favours the action of the microbes, so that any obstruction constitutes a predisposing. Calculi appear also to do this in human subjects, but the introduction of pieces of sterilised carbon into the renal pelvis of animals in no instance caused pyelitis. The treatment must vary, many cases recover spontaneously; nephrotomy with injection of a solution of silver nitrate (1 : 500 or 1 : 1000) where the ureter is permeable; nephrectomy always if it is impermeable. In the discussion on this paper Dr. Routier expressed the opinion that there are exceptions to the last rule.

Gaucher and Gallois. *The treatment of the pain in Renal Colic—Journal des Fracticiens*, January 11th, 1896.

Senator, H. *Neuralgia of the Kidney.—Berliner klin. Wochenchr.*, 1895, No. 13.

MM. Gaucher and Gallois have not anything new to suggest in the treatment of renal colic; they recommend the application of a poultice, sprinkled with laudanum, or the use of a hot bath; opium may be given by the mouth or rectum, or morphine hypodermically, while belladonna may be combined with either. Antipyrin may be given hypodermically, but causes much pain; a rectal injection of chloral, 30 grains, vinum opii, 10 drops, and decoction of marsh mallow, 4 ounces, may be used to give sleep; it should be given warm. An anonymous writer in *La Médecine Moderne* recommends glycerine, which he says is a powerful solvent of uric acid, and he says that its first effect is to cause thirst, then pain in the renal region, diuresis and the expulsion of calculi. Senator refers to the good effect of an incision into the kidney (nephrotomy), even when no calculus is found and the pain is purely neuralgic.

Eichhorst, H. *Nephrolithiasis im Anschluss an Brechdurchfall.—Deutsche med. Wochenschrift*, 1895, No. 48.

Prof. Eichhorst relates the case of his son, a boy aged 10, who on the fourth day of an attack of severe diarrhœa, suffered from strangury and passed urine of a dirty brown colour containing a large number of small rounded or lenticular calculi, varying in size from a poppy seed to a split pea. He recalls a case mentioned in his text-book where a small quantity of white wine always caused calculi, and he gives the history of a second case of the same peculiarity.

Ralfe, C. H., and Fenwick, E. Hurry. *On Renal Pain.*—Medical Society of London.—*Lancet*, 1896, i., p. 552.

The late Dr. Ralfe considered that the causes of renal pain calling for medical treatment were (1) reflex pain, from cardiac valvular aneurisms and impacted fæces; (2) aching kidney, from contusion or from the passage of highly acid or unduly concentrated urine; (3) acute gouty paroxysms in the kidney, associated with the passing of pus and uric acid crystals; (4) blocking of the ureter.

Mr. Hurry Fenwick believes that stones in the kidney may be loose in the pelvis, causing paroxysmal, or fixed in the cortex giving rise to constant, pain; or be contained in the pyramids, where they might cause either kind of pain. Where a cortical stone is present, the patient is forced to sleep on the affected side, but cannot turn without pain to the healthy side; the urine is not purulent unless the stone is in the pelvis.

Gibbons, R. A. *Renal Colic in Children.*—Royal Medical and Chirurgical Society.—*Lancet*, 1896, i., p. 163.

Dr. Gibbons draws attention to the frequency of renal colic in young infants; no stones are passed, but uric acid crystals and mortar-like material; in all cases the parents are gouty; the cases are apt to be confounded with intestinal colic; and they occur almost exclusively amongst the children of the well-to-do. Mr. Jonathan Hutchinson remarked on the rarity of calculus vesicæ among the children of the rich, an observation made by Brodie and Cadge, and which he could confirm. Dr. John Harley regarded henbane as a sheet-anchor in relieving the pain of such attacks; but it might be advantageously combined with opium.

UROLOGY.

Garrod, A. E. *On the Figmentation of Uric Acid Crystals deposited from Urine.—Journal of Path. and Bacteriol.*, iii., p. 100.

Dr. Archibald Garrod finds as the result of his researches that the yellow colour of uric acid crystals is due to urochrome and uroerythrine. When bile is present in the urine these crystals may be brown (Ultzmann), in carboluria they are nearly black (Andrews), and Dr. Ord has obtained them penetrated and encrusted with indigo-blue by adding mineral acid to urine rich in indoxyl sulphate.

Salkowski, E. *Ueber die Pentosurie, eine neue Anomalie des Stoffwechsels.—Berliner klin Wochenschr.*, 1895, No. 17.

According to Professor Salkowski, Pentose is a form of sugar which does not occur in the urine in diabetes, but probably originates in the pancreas from nucleo-albumen as a product of tissue metamorphosis. He has formed it very simply directly from the pancreas by decoction. Its presence can be demonstrated by phenyl-hydrazin in acetic acid solution, and its osazone has its own melting point; it reduces Trommer's test strongly but very slowly.

Scott, J. J *Hydrothionuria.—New York Med. Journal*, February 1st, 1896.

Dr. Scott has recorded five cases of the presence of sulphuretted hydrogen in the urine. His earlier communications are to be found in the *New York Med. Journal* for June 17th, 1893. The last case was a negress aged seventeen, who developed antepartal and post partal eclampsia; he says the urine on admission contained ten per cent. by weight of albumen! On the fifth day hydrogen sulphide was detected in her urine, and the absorption of the poisonous gas gave rise to restlessness, vomiting, delirium, delusions, complaints of smelling bad odours, and intermittent pulse. The symptoms soon subsided after the bladder was washed out with a weak solution of permanganate of potash.

Jolles, A. *Eine empfindliche Probe zum Nachweis von Albumin im Harne.—Ztschr. f. physiol. Chemie.*, xxi. 4 p. 306.

Yet another new test for albumen has been published by Dr. Jolles. It consists of chloride of mercury 10 parts, succinic acid 20 parts, common salt 10 parts, distilled water 500 parts. Four cubic centimetres of filtered urine are mixed with 1 c.c. of acetic acid and 4 c.c. of this reagent, and well shaken. In the presence of albumen the mixture is cloudy.

Strasser and Keetley. *Ueber Alkalinität des Blutes und Acidität des Harnes bei thermischen Einwirkungen.—Centrlbl. f. d. med. Wissenschft.* 1896, Nos. 4 and 5.

Strasser and Keetley have investigated very thoroughly the effects of hot and cold baths on the alkalinity of the blood and the acidity of the urine. They find that cold baths increase the alkalinity of the blood and diminish the acidity of the urine, while hot baths have the opposite effect. But the hot bath was at 30° to 32° R. (102° to 104° F.), and was contiued for an hour; the cold treatment consisted of a rub down, a shower bath, and a hip bath at 8° R. (48° F.); on another occasion a hip bath at 18° R. (70° F.) cooled down to 16° R. (68° F.).

Teissier, J. *Pretubercular Albuminuria.—The Medical Week*, 1896, p. 17.

It is suggested in this lecture by Prof. Teissier that there is an albuminuria, not dependent upon nephritis, which somewhat frequently constitutes a premonitory symptom of tuberculosis in young people, especially in boys, and only in cases of hereditary tuberculosis! It disappears when the tubercular process begins. [The frequency of albuminuria in young people, especially debilitated boys, is so common that it must coincide in a certain proportion of cases with the subsequent development of tuberculosis, but it certainly does so only exceptionally, and the suggestion at present has no clinical use.—Rep.]

Biedl and Kraus. *Ueber die Ausscheidung der Mikro-organismen durch die Niere.—Arch. f. exp. Path. u. Pharm.*, xxxvii., Bd. 1.

As the question whether the healthy kidneys permit the

passage of micro-organisms from the blood into the urine was not settled—some authorities maintaining that the renal epithelium must first be injured—Biedl and Kraus have carried out a number of experiments which show that as a rule within five minutes micro-organisms pass from the circulation into the urine, and this interval they rightly regard as too short to allow of any change in the renal epithelium. The micro-organisms used were almost exclusively the staphylococcus pyogenes aureus.

Kossler, A. *Ueber das Vorkommen von Cylindern ohne gleichseitige Ausscheidung von Serum-Eiweiss.—Berliner klin. Woch.*, 1895, Nos. 14 and 15.

Kossler has detected, by means of the centrifuge, casts of all kinds in twenty-nine cases which presented no albuminuria. They were, for the most part, acute infective diseases, but included cardiac cases and phosphorus poisoning. He therefore regards their diagnostic importance in renal disease as not great, especially as in several he was able to make a subsequent examination of the kidneys in several instances, and could discover no structural evidence of nephritis.

Marie, P. *Cyclical Albuminuria.*—The *Medical Week*, 1896, p. 265.

Prof. Marie bases his lecture on a case of albuminuria, which disappears when the patient lies in bed and returns when he gets up. The patient has been attending various Paris Hospitals since 1888, and is now thirty-two years of age. When in the army marching made his legs swell, and as he suffered from bronchitis he was sent home as tuberculous, but no tubercle bacilli have been found. Food has no effect in determining the albuminuria which is dependent upon the upright position, although it may occur even when he is in bed "under the influence of annoyance or bad news, or on the occasion of a storm." He does not present the cycle of Teissier, *i. e.*, 1, exaggerated elimination of colouring substances; 2, albuminuria; 3, exaggerated elimination of urates; 4, exaggerated elimination of urea. He explains the disease as an affection of the renal sympathetic

system, a renal migraine, and the patient was benefited by antipyrin.

Dunlop, J. C. *The excretion of oxalic acid in urine, and its bearing on the pathological condition known as oxaluria. Journ. of Path. and Bacteriol.*, iii., p. 389.

Dr. Dunlop in a very exhaustive paper endeavours to show that oxalic acid is a normal constituent of urine and that its precipitation, which he says occurs in one urine out of three, is caused as a rule by the deficiency of some normal solvent, for example, acid phosphate of sodium which he finds to possess this power. But large deposits are due to the excretion of an excessive amount. The source of this excess is not defective tissue metabolism, for such a view is inconsistent with the now generally accepted origin of uric acid from nuclein, or from incomplete combustion of carbohydrates, but from food originally containining it, of which black tea, cocoa, pepper, sorrel, spinach, and rhubarb contain the most. He also finds that acid dyspepsia is a cause and that he could increase the oxalate of lime at will, by taking large doses (360 minims daily) of dilute hydrochloric acid after meals. He believes that the clinical description of Begbie applies to hyperacid dyspepsia.

PUBLISHERS' DEPARTMENT.

New Inventions, Drugs, etc.

From Messrs. John Wright and Co., of Bristol, we have received specimens of their Visiting Lists, arranged in three forms, so as to suit the habit and convenience of every doctor. The Visiting Lists are handy and neat pocket-books, very practical in arrangement, and contain a number of tables of useful information.

The Midland Apothecaries Co. Lim. have been awarded a GOLD MEDAL by the promotors of the Midland Brewers' Exhibition, recently held at Bingley Hall, for their "Eucalturp" disinfectants. Experiments made on certain pathogenic microbes and poisonous ptomaines proved it to be a most powerful disinfectant or germicide. The Company will forward samples to any medical man on application to their Registered Offices, 14, Ethel Street, Birmingham.

New Books, etc., Received.

The Profession of Medicine, its Study and Practice, its Duties and Rewards. By CHARLES WEST, M.D., Fellow and late Senior Censor of the Royal College of Physicians, Founder of the Hospital for Sick Children, etc. London: Kegan Paul. 1896.

Kirkes' Hand-Book of Physiology. By W. D. HALLIBURTON, M.D., F.R.S. Fourteenth edition. London: John Murray. 1896.

Edinburgh Hospital Reports. Edinburgh: Young J. Pentland. 1896.

An American Text-Book of Applied Therapeutics, for the Use of Practitioners and Students. Edited by J. C. WILSON, M.D., Professor of the Practice of Medicine and of Clinical Medicine in the Jefferson Medical College, etc.; Assisted by AUGUSTUS A. ESHNER, M.D., Professor of Clinical Medicine in the Philadelphia Polyclinic, etc. London: The Rebman Publishing Co. Lim. Philadelphia: W. B. Saunders. 1896.

A Handbook of Surface Anatomy and Landmarks. By BERTRAM C. A. WINDLE, D.Sc, M.D., M.A. Dub., Professor of Anatomy in Mason College, Birmingham, some time Examiner in Anatomy in the Universities of Cambridge, Aberdeen, and Durham. Second edition, revised and enlarged in collaboration with T. MANNERS SMITH, M.A. Cam., M.R.C.S., Lecturer on Osteology and Senior Demonstrator in Anatomy, Mason College, Birmingham. London: H. K. Lewis. 1896.

Human Anatomy, General and Descriptive, for the use of Students. By JOHN CLELAND, M.D., LL.D., F.R.S., Professor of Anatomy in the University of Glasgow; and JOHN YALE MACKAY, M.D., C.M., Professor of Anatomy in University College, Dundee. Illustrated. Glasgow: James Maclehose and Sons. 1896.

A Text-Book of Bacteriology, including the Etiology and Prevention of Infective Disease. By E. M. CROOKSHANK, M.B., Professor of Bacteriology at King's College. Fourth edition. London: H. K. Lewis. 1896.

Manual of Diseases of the Ear, including those of the Nose and Throat in relation to the Ear, for the use of Students and Practitioners of Medicine. By THOMAS BARR, M.D., Lecturer on Diseases of the Ear, Glasgow University, etc. Second edition, revised and re-written and illustrated. Glasgow: James Maclehose and Sons. 1896.

Practical and Operative Gynæcology. By J. CLARENCE WEBSTER, M.D., F.R.C.P. Ed., formerly Assistant to the Professor of Midwifery and Diseases of Women, University of Edinburgh. Illustrated. Edinburgh and London: Young J. Pentland. 1896.

Skiaskopy and its Practical Application to the Study of Refraction. By EDWARD JACKSON, A.M., M.D., Professor of Diseases of the Eye in the Philadelphia Polyclinic. Second edition, illustrated. Philadelphia: The Edwards and Docker Co. 1896.

Section-Cutting and Staining. By W. S. COLMAN, M.D., M.R.C.P., Assistant Physician to the National Hospital for the Paralysed and Epileptic, and to the Hospital for Sick Children, Great Ormond Street. Second edition, enlarged and re-written. London: H. K. Lewis. 1896.

Transactions of the West London Medico-Chirurgical Society. Vol. vii. Session 1894-5. Edited by RICHARD LAKE and L. A. BIDWELL. London: John Bale and Sons. 1896.

Everybody's Medical Guide; a Hand-Book of Reliable Medical Information and Advice. By M.D. Lond. London: Saxon and Co.

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THE

BIRMINGHAM MEDICAL REVIEW.

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ORIGINAL COMMUNICATIONS.

ON PERITONITIS DUE TO PERFORATION.*

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GENTLEMEN,—

When, by the kindness of your President, I was invited to make a short communication to your meeting, three or four topics occurred to my mind as suitable for the occasion. Of these none appeared of greater interest or importance than *peritonitis due to perforation*, though it will be readily understood that I can only deal with this in a somewhat fragmentary manner, as the time at my disposal prevents my attempting an exhaustive study of the subject.

Only a few years ago peritonitis was generally regarded as a definite primary disease, due as a rule to cold or some diathetic condition, and as of so-called idiopathic origin in most cases. More complete investigation by morbid anatomists, as well as increased experience gained in abdominal operations, has shown these tenets to be wrong. Idiopathic Peritonitis—that is, peritonitis not due to some local centre of disease outside the peritoneum and extending to it—is now known to be quite uncommon, and peritoneal inflammation is regarded almost always as secondary to infection either from within

* Read at a meeting of the Shropshire and Mid-Wales Branch of the British Medical Association.

the abdomen or from outside it. Within the abdomen it may arise from perforation of the alimentary canal, from internal strangulation, from rupture of a gall-bladder, and so on; from without the abdomen the starting-point may be a strangulated hernia, or a wound accidentally or surgically inflicted.

When it became recognised that peritoneal inflammation often arose because the stomach or intestinal contents were leaking through a perforation, or an over-distended gall-bladder, or Fallopian tube had yielded, with escape of its contents into the abdomen, it naturally followed that attempts should be made to relieve these conditions by surgical measures.

Peritonitis from perforation, using the latter word in a somewhat elastic sense, may be due to perforation of the vermiform appendix or to bursting of a circumscribed abscess around it, to perforation of a Gastric Ulcer, to the yielding of a simple ulcer in the duodenum or rarely in some other part of the intestine, to sloughing through of a Typhoid ulcer, to the bursting of a distended gall-bladder or pyosalpinx. The onset is very acute and well marked as a rule, the progress of the inflammation is rapid, the early recognition of the state of affairs is of the most extreme importance. For several reasons, however, the course of perforative peritonitis is not always the same: we have not constantly typical cases to deal with in this any more than in other diseases. Variations occur, partly due to the nature of the extravasated material and its amount, to the position in the abdomen which the perforated part occupies, and partly to the resistance of the individual patient. Rupture of a gall-bladder distended with Mucus and Bile is a much less fatal accident than rupture of the same sac containing Virulent Pus. Again, if there is leaking from a perforated Stomach, extravasation is likely to be widespread, and the whole peritoneal cavity is at once extensively involved; whereas if the part perforated is the Vermiform Appendix, and this is well hidden by the Cæcum or lies in the Pelvis, the abdomen is not at once flooded with infective material, and for a time the inflammatory process may be and often is limited. Even in the case of

Stomach perforation there is variation, depending upon the fulness or emptiness of the viscus and upon the position of the patient at the time of the accident—whether she is vertical or horizontal.

Recognising the variability in the disease, the question arises, Is it possible to diagnose Perforative Peritonitis and to locate the primary mischief whence it started? Generally it is by a careful study of the symptoms of the onset, of the physical conditions following, and of the patient's previous history. Taking these points in the order mentioned, we find that the onset is very generally marked by *acute pain;* sometimes this is very intense, causing actual faintness. Especially is this the case in Gastric perforation. The pain may be widely diffused at once, but quite commonly it is for a time localised and indicates clearly the primary focus setting up the peritonitis.

Local tenderness at this stage too is often a valuable guide; later it is too wide-spread to be of use; but early, careful palpation of the Epigastrium, of the right Iliac region, or of the right Hypochondrium, may greatly assist in determining the primary lesion. At this time the abdomen is not distended; on the contrary it is often concave rather than convex, from muscular rigidity, and this may be of the most extreme degree producing a board-like feeling as though the muscles were bent upon keeping the contained parts as still as possible and limiting the extravasation of materials from whatever viscus is leaking. Despite the rigid muscles, eventually *distension* comes on as a very general rule and is due to varying causes; sometimes to a paralytic distension of the stomach and intestines combined with a large effusion of fluid into the peritoneal sac which may come on with extreme rapidity, sometimes to free gas in the belly-cavity which has escaped from the point of perforation. These varying conditions of intestine, and of fluid and gas in the peritoneal cavity produce corresponding variations in dulness and resonance upon which little value can be placed as a rule. If however there is *complete abolition of Liver dulness*, this points to perforation almost with certainty, as it means that free gas

has got in between the front of the liver and the diaphragm; mere diminution of the liver dulness is not of the same significance. Again, if in any particular part of the abdomen, as for instance in the supra-pubic region, there is a circumscribed area of tympanitic resonance with comparative dulness around, and other symptoms suggestive of perforation exist, this tympanitic area almost certainly indicates a collection of free gas in the peritoneal cavity, escaped from a perforation.

Vomiting is not very marked at the onset: there may be one or two vomits and then the sickness passes off, or there may be no actual vomiting at this stage, only a feeling of nausea. As Peritonitis becomes established vomiting is more likely to come on, but this is very much influenced by the way in which the patient is fed. If the stomach is kept empty there will not be much vomiting; if mouth feeding is allowed, then it is likely to be persistent.

Obstruction of the bowels is one of the common conditions of Peritonitis, whether due to perforation or not, but it is not a necessary concomitant. On the contrary, there may be actual diarrhœa, or there may be occasional expulsion of flatus or fæces. Whatever the explanation may be, I have no doubt that the emptying of the bowel is advantageous, and it justifies a better prognosis than where there is complete constipation. The ability of the bowel to act spontaneously, or to be emptied by purgatives or enemata, may be of great assistance in making a differential diagnosis between Perforative Peritonitis and Acute Intestinal Strangulation, a diagnosis which is not always easy and which this indication may make clear.

The temperature in Peritonitis is one of the indications from which it is very difficult to draw any useful conclusion; its variations are extreme and bewildering if one compares charts from different cases. Whilst stating this, however, I do not hesitate to say that in Perforation the thermometer may give valuable information. At the onset there is either a sub-normal temperature, or if there has been pre-existing fever this falls considerably. As a rule, the more pronounced the shock of Perforation, the more decided the drop in the temperature.

After the depression there is often a speedy run up to 102°, 3°, or 4°, but this cannot be relied on to follow, and is not as significant as the early fall of temperature.

The pulse is more regular in the course it pursues than is the temperature. If shock is marked at the time of perforation the pulse is small, fluttering, and varying in frequency; but whether shock has been pronounced or not, after a little time has elapsed, there is a steady quickening of the pulse until in three or four hours after perforation it generally ranges between 100 and 130, whilst it *may* have the hard wiry character supposed to be indicative of Peritonitis, but more commonly it is a soft pulse such as is seen in septicæmia.

To arrive, then, at a diagnosis of Perforative Peritonitis we must study carefully the pain and tenderness of the onset, the locality these occupy, the rigidity or otherwise of the abdominal walls, the presence of any area of unusual resonance which may indicate escaped gas in the Peritoneal cavity. We must also take into account the presence or absence of vomiting, of constipation; the temperature and pulse also must be given their due weight. Beyond this we need the patient's history. The age and sex are important guides. In a child the Vermiform Appendix is the most likely seat of Perforation, in a young anæmic woman the Stomach, whilst in a young or middle-aged male the Vermiform Appendix would first be suspected and after that Perforation of a Duodenal ulcer. More important still is the history of previous illness. If there is a possibility of Typhoid fever this may make the diagnosis at once clear; if the history is one of Stomach indigestion, even without the characteristic symptoms of gastric ulcer, Gastric Perforation should be duly considered; if the patient is a married woman, sterile either entirely or for some time, with a history of purulent vaginitis and of pelvic inflammation, then ruptured Pyo-salpinx would naturally be suspected. So with ruptured Gall-bladder; the history of previous and probably repeated attacks of Hepatic colic might indicate the locality of perforation. Again in Perforation of the Vermiform Appendix there is often a history

of previous attacks of so-called appendical colic followed by tenderness in the right iliac fossa and perhaps by a recognised swelling there. A complete and careful history then is of the utmost importance, bearing not so directly upon the question whether Perforation has taken place as upon the locality in which it has occurred. Further assistance in diagnosis may be obtained in some cases by the administration of an anæsthetic for careful palpation of the abdomen for any thickening or tumour. This would of course only be done if operative measures were in contemplation, when after examination the surgeon would immediately proceed to operate if this seemed advisable. Palpation under an anæsthetic has occasionally proved of great help to me, and by this means bi-manual examination can be carried out which from the age of the patient or the rigidity of the abdomen may be otherwise impossible.

The Treatment of Perforative Peritonitis, apart from the question of operation, is that of acute Peritonitis in general, and does not call for full description here. A few points there are, however, on which I should like to dwell. The first is the question of *feeding*. As a rule there is considerable thirst, it may be extreme if vomiting is present, and there is a constant demand by the patient for more drink, which the friends are anxious to administer, and as soon as anything is swallowed, it tends to return and the patient clamours for more. It is sometimes difficult to resist the appeals of the patient and his friends that he may be allowed to partake of fluids freely, and yet I am satisfied that his best interests are studied by restricting what is taken by the mouth to the smallest possible quantity. Vomiting can often be kept in abeyance by keeping the stomach empty, and there can be no doubt that repeated vomiting exhausts and depresses the patient; I believe it also has much to do with the miserable thirst from which he suffers. Nourishment should be administered by the rectum, and enemata of plain water may also be given to assuage the thirst in some degree. By the mouth at first only teaspoonfuls of fluid should be allowed, and

these may be cautiously increased if vomiting is not excited. It goes almost without saying that if Perforation of the Stomach is suspected, absolutely nothing should be given by the mouth, neither food nor stimulants nor medicine, lest these should find their way out through the perforation, or, what would be equally bad, excite vomiting.

Rest.—It seems almost unnecessary to dwell upon the importance of rest, and yet the word comprises so much. In dealing with Perforative Peritonitis it must always be kept in mind that extravasated materials are capable of being localised to one part of the cavity and shut off by adhesions from the rest. The more absolutely still the patient is kept, the less likely is wide-spread extravasation to occur: turning about from one position to another, sitting up in bed to receive food, etc., are all bad. Another point worth mentioning is the harm done by moving these patients from one place to another; they bear transit badly, and yet circumstances are at times so adverse that it is impossible to treat them, at all events operatively, where they are at first seen.

In discussing the administration of drugs I shall only speak of the use of *Opium* and of *Aperients*. Of the use of Opium much has been said and written that is contradictory, but in Perforative Peritonitis it seems to me that the line to be followed is clear. With the severe pain these cases usually suffer, and which I believe is the main element in the production of shock, it is I think cruel and bad therapeutics not to administer Opium, but this should be done on a definite plan. A sufficient dose should be given to relieve the severe pain and to tide over until shock has passed, when the question of operation should be fully considered. *If operation is performed*, the less Opium the patient has subsequently the better, unless the condition is considered an absolutely hopeless one, when we are glad to do anything to diminish the patient's sufferings. It may be asked, Why not give Opium after operation? The answer to this is closely bound up with the question of the administration of Aperients. Opium should not be given at this stage because

it blocks up the bowels and it diminishes the activity of skin and kidneys whilst we desire these to be as active as possible, so that by bowels, skin, and kidneys the Peritoneum may be drained as completely as may be of fluid. So much for the use of Opium if operation is performed. But suppose that operation is not resorted to because the indications are not clear. Then the administration of Opium should be avoided as far as possible: it lulls the patient and misleads the doctor, so that the golden opportunity when successful operative interference may be resorted to is allowed to slip by. It is better when watching a case for clear indications of what has happened and what is going on, to leave Opium unused; but I know this is a counsel of perfection sometimes extremely difficult to follow. When Perforation is diagnosed and operation is refused, then I would give Opium freely; it cannot in such circumstances mislead into letting an opportunity slip away, and by diminishing intestinal peristalsis it tends to limit and localise any extravasated material, so as to give rise to a localised abscess rather than a generalised peritonitis.

The influence of *Aperients* upon Peritonitis has been inculcated in modern times by Mr. Lawson Tait, to whom our gratitude is due; but I rather think the application of these remedies and Mr. Tait's teaching thereon has been misapprehended. To put it tersely, the great value of aperients is *prophylactic* rather than *curative*. If after an operation involving the Peritoneum there are any suspicions of Peritonitis, any tenderness, or commencing fulness, purge the patient; this is the stage at which the greatest good can be effected. Once Peritonitis is well established, purging is more difficult to effect and, though still useful, is not so valuable as in the earlier stage. On the value of Aperients in the treatment of early Peritonitis I do not wish to throw any doubt. But when perforation is diagnosed or suspected, Aperients are in my opinion absolutely contra-indicated; they can only lead to extravasation of the contents of the perforated part and to the wider diffusion of the escaping material. If, however, operation has been performed, the per-

forated part closed or removed, and the abdomen drained, then the use of aperients, either with or without the assistance of enemata, may be extremely advantageous, as practical experience has more than once shown me. I have dwelt somewhat upon this question of aperients, because there is a tendency to give them freely, when severe abdominal pain is complained of, without much investigation as to the cause of the pain, and I have seen great harm done in Perforation both of Stomach and Vermiform Appendix by this treatment. In Perityphlitis, or, as I prefer to call it, Appendicitis, the use of saline aperients and calomel still has advocates. Such treatment is a remnant of the days when this condition was believed to depend upon fæcal impaction in the Cæcum. Now that it is so positively recognised that the Vermiform Appendix is the part commonly at fault, and that it may be actually perforated or gangrenous, the use of anything which will disturb the intestine and omentum around the damaged part may do great harm in the *acute stage.* Let us leave the parts at rest, so that, if possible, adhesions may form a barrier around the diseased Appendix; whilst, on the other hand, we do not give Opium, which lulls our patient and induces us to misjudge the gravity of the condition.

This brings me to the last but to the most important point I have to discuss, viz., operative treatment. Speaking in general terms it may be said that Perforative Peritonitis is a fatal condition unless surgical interference can avert the fatality. Cases are recorded, it is true, in which perforation of the round ulcer of the Stomach has been followed by recovery without operation; reputed cases of Typhoid perforation recovering have also been described, and I have no doubt that occasionally the same thing occurs after Perforation of the Vermiform Appendix. But these fortunate occurrences are altogether so few that for practical purposes they may be disregarded, and if Perforation has been diagnosed and the condition of the patient and the surrounding circumstances allow of it, abdominal section should be done. The patient may be profoundly under the influence of shock from Perforation, or Peritonitis may already have so

advanced as to render the patient moribund. In either case a wise surgeon will hold his hand, not only for his own credit's sake but for that of the operation itself, that it may not be brought into disrepute. So again, he may be without assistance or nurses, or the quarters occupied by the patient may be so insanitary as to prohibit anything being done.

If operation is resorted to, the site of the incision and other details are chiefly determined by the part diagnosed as perforated. If the diagnosis as to the locality of perforation is not complete, and the operation is in the first instance exploratory, then the ordinary median incision above the pubis should be employed. Let me discuss briefly the details of treatment in some of the common forms of perforation, as for instance of the Vermiform Appendix, of the Stomach, or of a Typhoid ulcer, as time forbids me to consider all possible perforations.

I take perforation of the Vermiform Appendix first as being one of the common accidents of this kind. If there is one thing I have learnt in these cases by considerable experience it is *not to do too much* in the very acute condition. Evacuation of any extravasated or inflammatory material with drainage through the incision is generally the wisest course to pursue. If the Appendix is easily found at the time, by all means remove it; if it is not easily found it is better left alone to be removed later in an interval of quiescence if the patient recovers. The reasons for abstaining from any considerable search for the Appendix are two. First, that in many cases the fæcal leaking from the Appendix and the inflammatory products are circumscribed, by very ill-formed boundaries it is true, but yet sufficient to be of use in limiting the peritoneal inflammation. If the surgeon is intent upon removing the Vermiform Appendix he may easily spread infection where it did not previously exist by his fingers breaking through the slight limiting adhesions. The second reason for doing little in some cases is that the most acute are not in a condition to bear prolonged anæsthetising and manipulations. Let me recall such a case.

A man about 50 years of age had for some days had

abdominal discomfort with tenderness in the right iliac fossa. His doctor palpating this part thought he felt a lump there, when suddenly the patient called out with pain in the lower part of the abdomen shooting into the penis. His pain remained very severe and collapse was marked. Morphia and stimulants were given, and I saw him about five hours later. His pulse then was 120, very feeble, temperature 98°, the face very anxious and sweating, the abdomen was tender and rigid, there was diminished resonance in the right iliac fossa and hypogastrium. The history was so clear that I made an incision in the right iliac region and evacuated about half a pint of sero-purulent fluid lying amongst the intestines, and so far as I could determine, absolutely without limiting adhesions. The Appendix did not present and the patient's collapse was so severe that I was glad to hastily put in a drain, partly suture the wound, and get him back to bed again. With the exception of a small abscess which subsequently formed, a good recovery followed, and the patient is now, a year later, quite well. No thickening can be felt in the region of the Appendix, so nothing further has been done.

As to whether in these cases the abdomen should be opened in the middle line or over the cæcal region must depend upon the conditions present. If there is an area of dulness in the supra-pubic region after the urine has been drawn off, the incision had better be made here probably, otherwise it would be made over the cæcum. In some cases, especially in young children and fat adults, it is wise to wait until they are anæsthetised before deciding where to incise, as palpation may now reveal an area of thickening or increased resistance, an incision on which would lead most directly to the focus of disease.

Just one other point, and I leave the subject of Perforation of the Appendix. In not a few of such cases what is referred to as a general peritonitis is, in my opinion, often a circumscribed one, occupying it may be the lower half of the abdomen but not involving the upper folds of peritoneum above the transverse colon. For this reason I hesitate to use irrigation,

lest I should tear through limiting adhesions and carry infection where it does not already exist.

In dealing with perforation of the Stomach or Duodenum a more formal proceeding is required. All our experience goes to show that it is necessary in these cases to close or in some way shut off the Perforation from the belly cavity, and to thoroughly cleanse the peritoneum by irrigation or sponging. It is however of the utmost importance that operation should be done early; every hour which passes after perforation has occurred may be said roughly to add five per cent. to the risk of death. Whilst this is so, it is most unwise to commence operation until the primary collapse of perforation has passed away. When this has been tided over by stimulants and morphia, the abdomen should be opened in the middle line above the umbilicus for about four inches; more room may be obtained subsequently if desired by a transverse incision from this either to the right or left. On opening the abdomen, nothing amiss may be found at first. This means that the extravasation from the Stomach is limited, and every precaution should be taken to keep it so. Search should first be made between the Liver and the Stomach, where extravasation is most likely to be found; if nothing is detected here, then following along the Pylorus, the Duodenum should be examined. When Stomach or intestinal contents are found, they should be carefully sponged away and the perforation sought. This is often found on the anterior wall of the stomach; if not here, then on the lesser curvature, or it may be on the posterior surface, in which case it will be necessary to tear through the lesser omentum or the Gastro-colic layer to get at it. The Perforation having been found, should be closed by interrupted Lembert's sutures with a wide infolding of the edge of the Perforation, and this first layer of sutures may be reinforced by a second. Excision of the edge of the ulcer is unnecessary, and adds to the time consumed and therefore to the risk of the operation. If the ulcer cannot be closed, a glass drainage-tube should be passed down to it, and gauze should be packed around the tube and

brought out at the incision. The method of cleansing the abdomen has now to be considered. If there is widespread extravasation of stomach contents, or if there is general peritonitis, the abdomen should be thoroughly flushed out with large quantities either of hot water or of a normal salt solution. This can only be thoroughly done if a second opening is made above the pubes, and the stream of fluid sent right through from the upper incision whilst one of the operator's hands works systematically amongst the coils of intestine, along the line of the whole colon, between the liver and the diaphragm and lastly in the pelvis. Suppose, however, that the extravasation from the Stomach is limited, and that general peritonitis does not exist, irrigation should not be resorted to, but should be replaced by careful sponging of the infected area which is so far limited. Finally, before closing the abdomen, provision should be made for drainage, and if a second opening has been made for irrigation, this also should be utilised to drain.

All these proceedings take a considerable time to carry out, and the patients are bad subjects for prolonged operation, yet if an incomplete operation is performed it may almost as well be left alone. The surgeon and the anæsthetist must jointly keep a watchful eye on the patient's condition. It is of course no good to make a complete operation and send the patient to bed moribund; at the same time imperfect closure of the stomach or incomplete cleansing of the abdomen is almost certain to end fatally.

I have taken up so much time that I can only allude to Typhoid Perforation. That this is a frequent cause of mortality needs no demonstration. Examining the *post-mortem* register of the General Hospital for the past twenty years I find 29 deaths from this cause. Of these Perforations 27 were situated in the small intestine and 2 in the large, but a very important point is that in 20 of them where the exact place of Perforation is described, 17 were within twelve inches and 9 of them within six inches of the ileo-cæcal valve. What should be done in the way of operation for these cases has not yet been clearly formulated.

The mortality will always be very heavy, but of course operation is the alternative to practically certain death, and so in a select number of cases should certainly be kept in mind. Abdominal section in the middle line has been generally advocated, but the facts collected from our *post mortem* records suggest to my mind that the right semi-lunar line is a better site, as likely to lead more directly to the point of Perforation, in itself a most desirable thing. A Perforation having been found, if small and with tissues around not too deeply destroyed by sloughing, the edge of the hole should be well infolded and Lembert's sutures applied. If the conditions are not suitable for this, the next best plan will be I believe to pass a Keith's drainage-tube down to the perforation, pack carefully around with gauze, and partly close the incision. The method of dealing with these cases at present, however, is not one upon which I feel inclined to speak dogmatically.

My excuse for bringing this subject before you to-night is that Perforation of the hollow viscera in the abdomen is an accident of some frequency. The patient's fate turns upon an early recognition of the condition and its speedy treatment. This it is which throws such a heavy responsibility on the practitioner who first sees them. Many of these patients, at all events outside large towns, cannot be sent into hospitals; often there is no opportunity of obtaining the assistance of those who practise surgery specially. For these reasons it may devolve upon any medical practitioner to diagnose and operate himself in these grave calamities, in which hours are of more importance than days in many other serious diseases.

VAGINAL OPERATIONS ON THE UTERUS AND ADNEXA.

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(Continued from page 154.)

THE OPERATION OF VAGINAL HYSTERECTOMY.

IT will be convenient to describe first the performance of simple vaginal hysterectomy as it is usually done for cancer of the cervix, and afterwards to treat of the various modifications of the operation when it is applied to other affections.

Preparation of the Patient.—In order that septic complications may be avoided and success ensured, it is necessary that the greatest care should be exercised in rendering the parts concerned as free from surgical dirt as possible. That this is able to be done is proved by the publication of long series of cases in which septic complications after the operation have been absent. The preparation of the patient should begin forty-eight hours before the time appointed for the operation. If there be a fungating and putrefying mass of granular and friable material, as is generally the case in cancer of the cervix, this should be cleared away with the sharp spoon by the operator or an assistant; for this an anæsthetic is not always necessary. The vagina must be well flushed out with three or four pints of some strong antiseptic solution, the best being one of corrosive sublimate, 1 in 2,000; at the same time the surface of the ulcer and the walls of the vagina should be well rubbed over with tampons of wool soaking in the solution. The vagina may then be packed loosely with iodoform gauze. The douching, with or without the gauze packing, should be repeated on the evening of the next day and again on the morning appointed for the operation. On the evening of the second day before the operation, the pubic hairs should be clipped as close as possible with scissors. The patient should then, if

possible, have a hot whole bath, or at the least a hot hip bath, which should be repeated on the evening preceding the operation. Either in the bath or as may otherwise be convenient the whole pubes and vulva should be thoroughly cleansed with hot water and soap and rubbing, the nail-brush being used wherever possible; after this ablution the parts, together with the buttocks, perineum, upper part of the thighs, and lower abdomen, should be well rubbed for at least three minutes with swabs of wool soaking in methylated spirit, or in turpentine; and finally, with 1 in 2,000 solution of corrosive sublimate or with 1 in 20 carbolic acid lotion. This routine should also be repeated on the evening preceding operation.

Thirty-six hours before operation an aperient should be given at bedtime, such as an ounce of the black mixture, or 2½ grains each of the colocynth and hyoscyamus pill and of blue pill. This should be followed by a simple enema on the following morning. and a second enema should be administered on the morning of the operation. It is probably needless to say that the enema should precede the cleansing. A light breakfast of tea and bread and butter should be given four hours before the time for the anæsthetic; and the catheter should be passed immediately before the anæsthetic is begun, or as the first step of the cleaning up which takes place after the patient is rendered unconscious.

The processes just described constitute the preparations which are desirable for every vaginal operation, and it may be useful to sum them up shortly as follows:—

Second night before operation.—Cleanse vagina and pack; shave pubes. Hot bath, with particular attention to parts involved, which are cleansed by scrubbing with (1) soap and hot water; (2) alcohol; (3) 1 in 2000 sublimate solution. Aperient

Day before operation.—Morning, enema Evening, vaginal douche; hot bath, etc., as previous evening.

Morning of operation.—Enema; light breakfast four hours before time for anæsthetic; pass catheter immediately before operation.

ARRANGEMENT FOR OPERATION.

The choice of an anæsthetic must be left to the anæsthetist, since he is responsible for the safety of the patient as well as for keeping her quiet during the operation. As soon as the patient is unconscious she is brought into the lithotomy position, and the Clover's crutch applied. Some operators employ the lateral position, but this is less convenient, and would appear to increase the liability to injury of important structures. The buttocks are brought to the edge of the operating table. A mackintosh is placed under the patient; its upper end is folded two or three turns round a piece of rubber cord, one inch thick and five feet long, with lead or brass ferrules on the ends; the upper end of the waterproof material with the cord is placed across the table under the patient's sacrum; the loaded ends are then brought over the end of the table and, together with the lower end of the mackintosh, made to hang into a bucket or pail. In this way a U-shaped channel is formed, which conducts all lotions and other liquids into the pail and, at the same time, prevents them from running upwards along the patient's back so as to wet and cool her. The operator or the first assistant next gives a final cleansing to the vagina, vulva, and surrounding parts, and a sterilised towel is placed over the lower part of the abdomen. Where there is a cancerous ulcer, it is well at this stage to cauterise the surface freely with Paquelin's thermo-cautery. The operator and his assistants and nurses prepare their hands and arms in the way which is usual before all operations, especially severe ones. The usual method is somewhat as follows:—Arms are bared to the elbows, and a freshly laundered white cotton or linen apron or jacket is put on. The hands and arms are then well scrubbed with hot water and soap by means of a nail-brush *for three minutes by the clock;* particular attention is paid to the hollows around and under the nails, which last must be short. The soap is then washed off and the hands and arms dried. They are then well rubbed with sterilised wool, soaked in spirit, for two minutes by the clock. Finally, for a further two minutes they are well

rubbed with 1 in 20 carbolic lotion or 1 in 1,000 sublimate solution, the nails and fingers being especially scrubbed with a nail-brush.

The operator sits at a convenient height opposite the field of operation; a table is placed at his right hand for trays containing instruments, ligatures, and sterilised swabs of wool or gauze to serve as mops. An assistant on either side takes the flexed thigh of the patient under one arm, and is ready to hold retractors or forceps, and to mop the wound.

First Step—Drawing down the uterus.—A Sims' speculum with a broad short blade is used to retract the perinæum; for this purpose Auvard's weighted speculum is a useful variety, and saves the use of an assistant's hand. A retractor is placed on each side of the vulva. Each lip of the cervix is then seized by a volsella, and the uterus steadily and strongly pulled downwards until the cervix is at the vulva. On the possibility of dragging the organ well downwards depends the ease of the operation.

In cases of cancer of the neck, that lip which is less eaten away by the disease is selected to be dragged upon with the volsella. Not unfrequently the whole circumference of the cervix is so ulcerated and friable that it is impossible to get hold of it; in these cases Galabin's uterine depressor is extremely useful; this is a variety of volsella made with sharp teeth opening outwards, so that when the end is introduced into the body of the uterus, and the blades separated, the teeth penetrate into firm uterine tissue above the cancer. In cases of cancer of the body a strong volsella may be made to take hold of both lips of the cervix so as to close the external os, and thus prevent the escape of septic discharges; or the external os may be first closed with two or three points of suture. Some operators find it convenient to depress the uterus by two or three strong loops of silk through the cervix. In any case where the volsella are tearing out a better hold should be taken as soon as the anterior and posterior surfaces of the cervix are cleared. A strong toothed forceps may then be applied in firm uterine tissue, and the organ can thus be more forcibly dragged down.

Second Step—Separating Vagina and Bladder in front of Uterus, and Opening the Vesico-uterine Pouch of Peritoneum.—The place where the wall of the vagina becomes separated from the anterior wall of the cervix is indicated, when the uterus is drawn down, by a visible change of level and by an alteration in the colour of the surface. At this level a transverse incision is made, by means of the knife, scissors, or Paquelin's thermo-cautery, across the front of the cervix from one side to the other, extending through the firm wall of the vagina into the loose connective tissue between it and the bladder; the incision is usually made slightly curved, with the convexity towards the free end of the cervix. If any doubt exists as to the extent to which the bladder extends downwards on the front of the cervix, it can be resolved by the use of the vesical sound. The loose vesico-uterine tissue having been opened, the bladder is pushed off the front of the cervix by the end of the finger pressing upwards close to the firm surface of the uterus; the handle of the scalpel or the blunt end of a pair of scissors may be used for this purpose. The separation of the bladder is continued upwards until the vesico-uterine fold of peritoneum is reached; if the loose connective tissue be separated to a higher level than this, the peritoneum becomes detached from the surface of the bladder, and not from the front of the uterus; when the peritoneum has been separated to a higher level than the fold, the finger feels two smooth surfaces of the serous membranes gliding over each other on the front of the uterus. The distance between the cut edge of the vagina and the vesico-uterine fold of peritoneum varies between half an inch and one and a half inches. The fold is found with ease when the body of the uterus is brought well forward, but with considerable difficulty when the body is retroflexed; in the latter case there is also a risk of wounding a coil of intestine in opening the peritoneum. The difficulty is avoided by strongly drawing the cervix downwards and backwards, and if necessary by turning the uterus forwards with the aid of a thick sound passed into its cavity. As soon as the peritoneum is recognised, a fold is caught up by forceps

and an opening made in it with scissors; the opening is then enlarged by the finger, which is made to press off the bladder on each side from the front of the cervix and from the connective tissue at the base of the broad ligament. A considerable opening is thus made in front of the cervix, and the base of the bladder, carrying with it the lower ends of the ureters, is pushed upwards and to the sides out of danger. In this way nearly an inch of the base of the broad ligament can be extirpated without injuring the ureter. Above the level of the internal os the ureters hardly come into consideration. The edge of the vesical peritoneum is then caught up in forceps, and a silk or catgut suture is placed at each side of the wound, uniting the peritoneum to the cut edge of the anterior wall of the vagina.

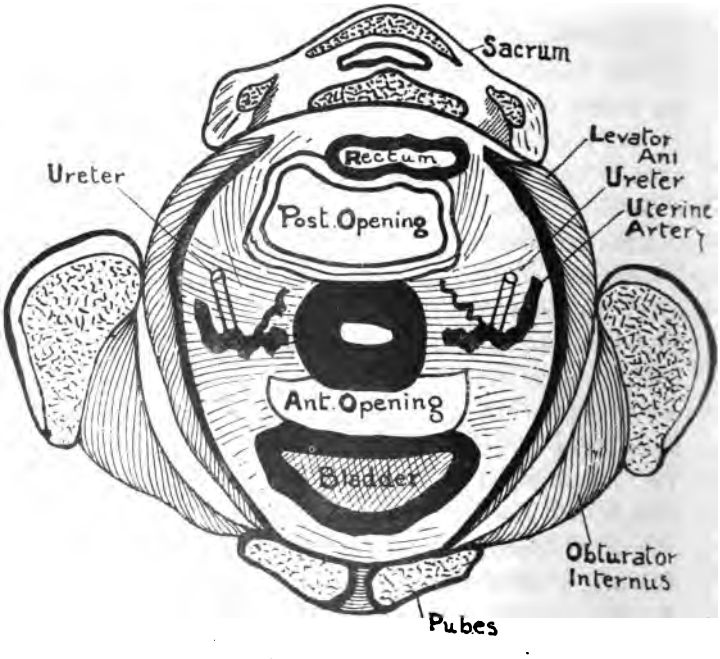

Fig. 2.

Transverse section through pelvic connective tissue, through third piece of the sacrum, and through the middle of the symphysis. Shows openings made through the connective tissue into the peritoneal cavity.

Third Step—Opening Douglas's Pouch.—The cervix is now carried forwards as far as possible. A transverse incision is then made through the posterior wall of the vagina at its reflexion from the cervix; the ends of this incision do not quite meet the ends of the anterior one, a small portion of the vaginal wall being left intact on each side. The peritoneum of Douglas's pouch is then seized with forceps and divided with scissors, and the opening enlarged with the finger. Free bleeding sometimes takes place from the divided vagino-peritoneal surface; the bleeding is stopped by two or three sutures of silk or catgut passed by means of a short curved needle, bringing the cut edges of the peritoneum and vagina together, or the same end may be attained by fastening the cut surfaces with two or three pressure forceps. This "vagino-peritoneal hem" is important in helping to limit the opening-up of the cellular tissue, and the consequent risks of torn vessels and hæmorrhage.

Fourth Step—Securing the broad ligaments.—This is the most important and difficult stage of the operation. The uterus is

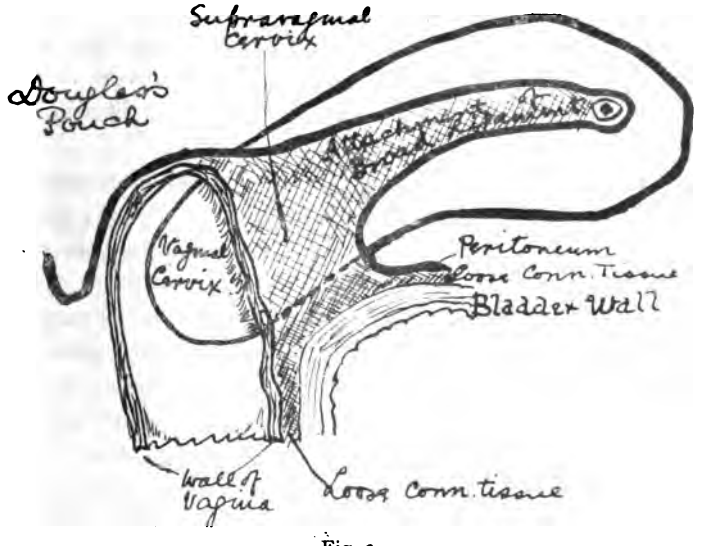

Fig. 3.

Shows attachment of broad ligament, nnd relation of connective tissue to side of uterus.

now attached by the broad ligament on each side and by the thick collection of connective tissue at the base of each. In this connective tissue, at the vertical level of the upper part of the cervix, the ureter runs forwards and inwards at a distance of about two-thirds of an inch from the side of the cervix; the distance from the cervix for the safe application of ligatures or forceps at this level amounts therefore to about half an inch on either side. At a little higher vertical level than the ureter the uterine artery courses inwards to the side of the uterus, which it reaches at about the level of the internal os; here it turns upwards and runs close to the side of the uterus, but without entering the substance of the organ; near the cornu the uterine artery is joined by the terminal portion of the ovarian. From the portion of the uterine artery between the ureter and the side of the uterus some fair-sized branches run downwards through the connective tissue to the walls of the vagina. As the artery ascends by the side of the uterus it gives off numerous branches to that organ.

The broad ligaments may be secured and hæmorrhage stopped by (1) ligature, (2) forceps; or (3) the ligaments may be divided gradually from below upwards, working close to the uterus, and the vessels be secured by ligatures as they are divided. The method of securing the broad ligaments by ligature is the best, and will be first described.

1. *Ligature.*—The uterus being well drawn downwards, the operator passes the thumb and forefinger of one hand into the anterior and posterior incisions and feels in the lower part of the broad ligament for the pulsations of the uterine artery; if these can be felt a silk ligature is passed from behind forwards at a higher vertical level than the uterine artery, and at a distance of half an inch from the side of the uterus, by means of a well-curved handled needle. The ends of the anterior and posterior incisions in the vaginal wall are then joined by cutting through the remaining bridge of wall with scissors. The ligature is then tied as firmly as possible. A similar ligature is placed on the other side. The lower portions of the broad ligaments are now

divided close to the uterus and almost as far upwards as the

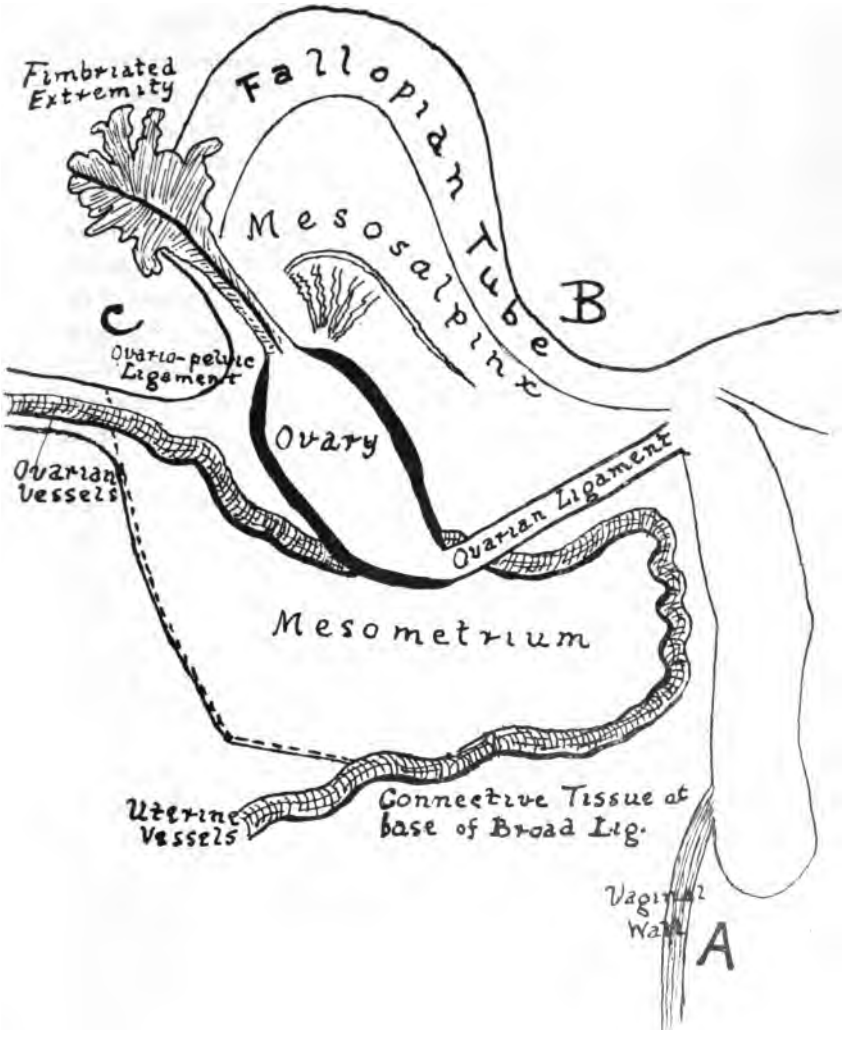

Fig. 4.

Diagram showing arrangement of structures and vessels in the left broad ligament, seen from behind. Line of ligatures or forceps placed from A to B, when adnexa are left *in situ*; from B to C, when they are removed along with the uterus.

ligature extends. The uterus can now be pulled farther down-

wards, and a second ligature be placed on each side at a similar distance from the uterus; these are tied and the ligaments divided close to the uterus, which is again pulled down farther. A third ligature on each side secures the remainder of the broad ligament; the uterus is then removed. If it is desired to remove the uterine appendages at the same time, the uterus and the tube and ovary are well drawn down, and the last silk ligature placed on the ovario-pelvic ligament; the tube and ovary are then removed by dividing the remains of the broad ligament with scissors, care being taken to leave a sufficient stump to prevent slipping. The same procedure is repeated on the other side. The far end of the broad ligament is caught up in pressure forceps so that it may be drawn down subsequently to allow of the introduction of a strip of iodoform gauze into Douglas's pouch, without the risk of pushing up the peritoneum and tearing open the cellular tissue.

2. *Forcipressure.*—Many operators, particularly in France, prefer to secure the broad ligament by means of pressure forceps. This method varies according as one or several forceps are used for each broad ligament. One forceps with long pressure blades is used for each ligament by Doyen and Richelot, and in this country this method has been recommended by Braithwaite and Greig-Smith, each of whom has devised a forceps modified for the purpose. One blade is passed in front and the other behind the broad ligament, and the forceps are then adjusted at about half an inch from the side of the uterus, the fingers taking care that no bowel is included between the blades. The forceps are then closed, and the broad ligament divided close to the uterus, so as to leave a sufficient length of stump to prevent retraction from the grasp of the instrument. The other ligament is treated in like manner.

Other operators prefer to treat each ligament with two or three pairs of forceps. Jacobs has devised forceps for this purpose with pressure blades one and a half inches long, and shanks of three various lengths, so that the handles may be

brought outside the vulva while the blades compress portions of broad ligament at various heights. These forceps are more easy of application than those with longer blades, while their action in preventing slipping of the ligament or of vessels and the occurrence of hæmorrhage is more certain. The first forceps is placed on the lowest part of one broad ligament, which is then divided close to the uterus; the lowest part of the other broad ligament is then treated in like manner. The uterus is now pulled further downwards and a second forceps placed on a higher portion of the ligament on each side; these portions are in turn divided. The third forceps secures the upper part of the broad ligament either internal to the ovary, or, if the ovary and tube are to be removed, external to them, on the ovario-pelvic ligament.

3. The method of securing the vessels as they are divided was described by Batt, and has been called the American method of vaginal hysterectomy; the method by ligature *en masse* has been called the German, and that by forcipressure the French. The "American" method does not differ essentially from the ligature method above described, and does not call for special description.

COMPARISON OF FORCEPS AND LIGATURE.

In favour of forceps it is claimed that they are more easy and rapid of application, and thus shorten the operation. The further argument that by their use a smaller quantity of blood is lost, and that they more certainly secure bleeding vessels, has less force; if the ligature is skilfully applied there is nothing to choose in this particular. Secondary hæmorrhage, especially at the time of removing the forceps, appears to be much more common in that method. Drainage is held to be secured by the forceps method; against this it may be urged that the instruments afford an avenue for a very possible secondary infection of the wound. It may be admitted that no ligatures are left to become infected. Necrotic portions of tissue, which are very likely to become infected and slough,

are, however, left behind in the forceps cases, and the process of sloughing is not one which can be accurately limited; in many cases the ureter has been ulcerated in this way, and an uretero-vaginal fistula set up. This accident seems to be much more likely to happen with forceps than with the ligature, and must be looked upon as a serious drawback to the former method. Further, the continued pressure of the forceps has not unfrequently been the cause of pressure sores in the walls of the rectum, intestine, or bladder. The disadvantages of the forceps method therefore appear, in cases that are suitable for both methods, far to outweigh the advantage gained by ease and rapidity of application. In cases where the ligature is employed, and where the orifice in the peritoneum is closed, there is less chance of adhesion of intestine to the scar and of possible consequent obstruction, and there is less risk of prolapse of intestine into the vagina. A further not unimportant consideration is that when forceps are left *in sitû* it is necessary for the patient to remain absolutely at rest for forty-eight hours or longer in a position which soon becomes very hard to be borne. The ligature method is to be preferred in every case in which it can be applied; the forceps is only to be recommended in cases where ligatures cannot be placed, or in ligature cases where a bleeding point cannot be safely tied, as for instance in friable and œdematous ligaments.

Fifth Step—Treatment of the wound in the vaginal vault. Question of drainage.—The ideal termination of the operation is to close the wound in the peritoneum, while arranging that all the raw surfaces shall be brought outside the peritoneal cavity. In cases of cancer it is not safe to close the wound entirely, because the prevention of infection of the wound is uncertain; it is therefore best to leave the middle of the wound open, and to introduce the end of a rubber drainage tube or of a strip of iodoform gauze through this into the peritoneal cavity. On either side, with a short curved needle, a silk or catgut suture is passed first through the vagina and peritoneum posteriorly, then through the upper part of the broad ligament,

just on the distal side of the topmost ligature, and finally through the cut edge of the peritoneum and the vaginal wall in front. When these ligatures are tied the raw surfaces are turned outside the peritoneal cavity, and inside it the serous surfaces are brought into contact.

Dressing.—In the ligature method, the vagina and vulva are now cleansed; if a rubber drainage tube is introduced, it is fixed by a silk suture passed through it and superficially through the vagina; one or two strips of iodoform gauze are loosely packed into the vagina, and the patient is returned to bed.

Where forceps are left, a strip of iodoform gauze is first packed in the middle of them; the forceps are then held together and a strip of iodoform gauze wound round them so as to prevent their coming into contact with the walls of the vagina and with the vulva. Care has to be taken while moving the patient to prevent the forceps being disturbed; the patient is arranged in bed on her back with the knees drawn up and separated, and supported by pillows. This position has to be maintained for forty-eight hours, or as long as any of the forceps are left in *situ*.

After Treatment.—The patient is returned to a warmed bed, and is well covered with warm blankets; four or six hot-water bottles covered with flannel are arranged round her. When forceps are left, the woman is placed on her back with the legs drawn up, flexed, and supported by pillows placed under the hams; this position and arrangement have to be kept up until the last pair of forceps is removed. The nurse will have to exercise more than the usual vigilance in the forceps cases to prevent the formation of a bed sore; to this end pads of absorbent wool must be arranged so as to soak up all discharge, and must be changed frequently; night and morning the lower part of the back must be inspected, the patient being turned towards first one side and then the other just sufficiently for the purpose; at the same time the skin must be washed with warm water and soap, carefully dried, and then rubbed over with methylated spirit. The heels require similar attention. The catheter will

require to be passed every six hours from the first; its use is to be stopped as soon as the patient can empty the bladder herself, which she should be encouraged to attempt as soon as possible in ligature cases, as soon as the last forceps is removed in the forceps cases. Where the catheter is used for more than three days, catarrh of the bladder is frequent in spite of every precaution. The bowels may usually be left to themselves for five or six days, and then relieved by a saline aperient followed by a two-pint simple enema. Occasionally, there may be an indication, such as distension or furred tongue with nausea, for a purgative at an earlier date.

The diet after operation requires to be nutritious, but simple and easily digestible. After the operation nothing should be given by the mouth until the sickness has stopped; if the condition of the patient requires something to be given, three-ounce nutrient enemata of peptonised milk, strong beef tea, beaten up egg, and if desirable brandy, may be administered every four or six hours.

If the sickness continues for more than a few hours and thirst is complained of, it can be relieved by injections of saline solution, of the strength of one drachm of sodium chloride to the pint of water; six or eight ounces of this may be given as an enema every four hours. As soon as the vomiting ceases, teaspoonfuls of plain water, soda water, thin gruel, whey, or peptonised milk may be given by the mouth at intervals. On the day after operation the woman will usually be able to take from two to three pints of the above fluids; one and a half to two pints of this quantity should be milk. On the following day two pints of milk, and some bread and butter or milk pudding, and a little tea may be given. The diet should be gradually increased until the patient is taking a full amount of plain food by the seventh or eighth day.

It is often necessary, especially in forceps cases, to give one or more hypodermic injections of morphia after the operation; these should be avoided as far as possible. The local pain is often increased by the accumulation of a certain amount of

flatus in the rectum, and when this is so, the patient is much relieved by the passage of the flatus-tube every four to six hours until the wind passes naturally.

A time table should be arranged for the nurse after the operation, of which the outline will be somewhat as follows :—Note every four hours (1) the temperature, (2) the pulse, (3) the presence or absence of abdominal distension. Every six hours (1) pass the catheter, (2) pass the flatus tube; in each case note the result; and (3) change the external dressing. Every twelve hours examine and dress the back and heels. Definite instructions about food and drink should be added, and the nurse of course be instructed to note the frequency, amount, and nature of vomiting (if any), and any other symptom that may arise.

The treatment of the wound is simple where ligatures have been used and the antiseptics have been successful. The strips of iodoform gauze may be removed on the fourth to the sixth day; the vagina will be found to be left dry, and no subsequent treatment will be found necessary as a rule. If any definite amount of discharge persists, and especially if there be any rise in temperature, antiseptic injections, among which iodine solutions are the best and safest for the purpose, should be given two to four times a day according to necessity, care being taken always to secure that the vulva shall be kept freely open during the injection. In forceps cases the instruments are removed at the end of forty-eight hours with the utmost gentleness; if on trying to remove one of them much pain is caused, or any difficulty be found, this one is left until the others have been removed, when it usually comes away easily. After the forceps are removed the vagina should be gently washed or rather swabbed out with an antiseptic solution, and a strip of iodoform gauze afterwards introduced and left until the next dressing. In forceps cases the vagina will, more frequently than in the ligature ones, require to be dressed daily or oftener for a time. The reason for this is that there is more dead tissue left in the former cases, and that the dead tissue is more exposed to secondary infection with putrefactive organisms, and thus to

sloughing, in the forceps than in the ligature cases. In neither method is sloughing essential; where it does occur it is caused by infection of the raw surface, either at the time of operation or subsequently.

If all goes on well, the patient may be allowed to sit up on the eighteenth or nineteenth day; not earlier, because of the risk of embolism.

(To be continued.)

PERISCOPE.

THE ÆTIOLOGY OF LEPROSY.

BY JAS. W. RUSSELL, M.A., M.D., M.R.C.P.

THE collection of three Prize Essays,* written at the invitation of the National Leprosy Fund, and reprinted by permission by the New Sydenham Society, forms the third work on the subject of Leprosy which has appeared in this country within the last eighteen months. Of these, the very scientific treatise written by Drs. Hansen and Looft, and translated from the Norwegian by Dr. Norman Walker, and the more popular book of Dr. Impey, have already received notice in the pages of this *Review*. Of the most recently published volume, the Essay by Dr. Newman has for its subject the History of the Decline and Final Extinction of Leprosy as an Endemic Disease in the British Islands, and that by Dr. Ehlers, the Condition under which Leprosy has declined in Iceland, being the outcome of the experience gained by a personal visit to that country; whilst Dr. Impey contributes two essays on Leprosy in South Africa, and on Spontaneous Recovery from Leprosy, respectively.

* Prize Essays on Leprosy. Newman, Ehlers, Impey. London: The New Sydenham Society. 1895.

The questions considered are thus largely of an ætiological and historical nature; and some of them are of so much interest and importance that a few of the results arrived at by the authors may well be reproduced.

Although the actual and immediate cause of leprosy has ceased to be a matter for discussion since the discovery by Dr. Hansen of the leprosy bacillus, the physical and social conditions which are essential for its endemic existence and spread, together with the mode in which infection of the individual arises, still remain open to doubt. To the elucidation of these questions the essays of Drs. Newman and Ehlers are largely devoted. Dr. Newman, it is true, contributes a long section on the history of leprosy in England, and on the means adopted to meet the social and political difficulties which arose from its existence in the country; nevertheless, the real medical interest of his essay begins with the consideration of these important questions. From an able discussion of the physical and social conditions existing in England during the leprosy period, and in China, India, and Iceland at all times, Dr. Newman concludes that, although the leprosy areas have on the whole corresponded with low-lying and marshy districts, and the growth of the disease has followed in the course of the denser populations (Iceland, however, is surely an example to the contrary), yet one of the essential common features in leprosy districts throughout the world has been the existence of great poverty, bad sanitation, and dirt.

This view receives a most graphic illustration in the essay of Dr. Ehlers, in which his own experience of the conditions of life in Iceland is given; an illustration which loses none of its power by the slightly foreign English in which it is clothed. We quote the following excellent description :—"The Icelandic habitation is in its typical form a sod-hut of green turf. It is built without a foundation, resting upon some large stones or the bare ground. . . . . The front is covered with a thin layer of boards, some few of the rooms are boarded, and from the boards drips the moisture in big drops, even in fine

weather, for the sod absorbs the dampness like a sponge. When we had been out in the rain our clothes could never be dried in the interior of these houses. In the façade there are some few windows, which are all, however, nailed up for fear of the winter cold, so that the rooms are only and entirely ventilated through the T-shaped passage which connects each of the rooms with the air outside. . . . . One of the rooms always serves as a separate bed-room for the peasant and his wife; but with the poor this room is dropped, and all the people of the farm—men, women, and children—sleep in the same room, the so-called 'Badstofa.' In this room everyone at the farm lives during the long rainy days and the long winter evenings; here the meals are eaten, generally in bed, for there are no tables. . . . . If you enter this Badstofa when thirteen to fourteen persons lie sleeping there, ... a suffocating stink and an unwholesome smell meet you. It is the smell of the mouldy hay, of the sheepskin quilts that are never dried or aired; it is the smell of the dirt which is dragged into the house on the clumsy Icelandic skin shoes that want double soles, and are quite unqualified to keep out the dampness. In this dirt a confused mixture of cats, dogs, and children lie reeking on the floor, exchanging caresses and echinococci; it is the smell of the wet stockings and the woollen shirts which hang to dry next to a slice of dried halibut or the dried cod's head. . . . . And if you poke your nose into the corners of the Badstofa you will find a bucket in which the urine of the whole party is gathered; it is considered good for wool washing." Hence, Dr. Ehlers concludes, "it is neither the rancid butter nor the dried fish which is to be accused of the introduction of leprosy, nor again either the bad water or the lack of ventilation, but the whole *ensemble;* it is the absolute want of cleanliness plus Armauer Hansen's bacillus, which in such an interior finds its true paradise."

It will be seen, therefore, that in Dr. Ehlers' opinion the bad hygienic conditions of those countries in which leprosy is endemic are the sufficient and essential cause for its existence. To Dr. Newman, on the other hand, this explanation is insuffi-

cient, and for the following reasons. After a careful and extensive historical investigation, Dr. Newman arrives at the conclusion that leprosy in England probably reached its zenith in the course of the thirteenth century, and he supports this contention by reference to several contemporary documents dated in the fourteenth century, bearing witness to the comparative emptiness at that period of many of the established leper hospitals. From this time until the eighteenth century a steady decline, down to the point of final extinction, was observed. It need, however, hardly be pointed out that the hygienic conditions in England during the earlier part of this period were of the worst possible kind, nor that those conditions in the towns whose populations were increasing changed at first only for the worse. Nor must it be forgotten that the hygienic conditions which exist at the present time in the worst slums of our large towns are but little better than those which Dr. Ehlers describes as obtaining in the poorer districts of Iceland. It would therefore seem that an improvement in the hygiene can have had but little to do with the commencement at least of the decline of leprosy. Nor, again, does it seem to be possible to account for this decline by the segregation of lepers which many writers assume to have been carried out; for, as Dr. Newman insists, no such system of segregation was in force. There were, indeed, in almost all parts of England leper houses or "hospitals," in which lepers were to some extent confined; but it is made clear that these institutions were by no means hospitals in our sense of the word, and that the isolation of lepers was not enforced to any material extent even in the hospitals themselves. Thus, with a few exceptions, these hospitals, were "ecclesiastical, not medical, institutions; refuges, not places for treatment; palliative, not radical. It is true there were divers laws and regulations enacted, and more or less enforced, with regard to detention of lepers and preventing them obtaining access to the city of London; but that any system of proper segregation existed, I have been able to find absolutely no evidence at all.

Indeed, all the evidence points in the other direction. The lepers were allowed to go into the markets and fairs, and friends and wayfarers were constantly allowed to reside in the leper hospitals. The mixed character of the hospitals is well illustrated in the case of Lynn (1145), which provided for twelve brethren or sisters, nine of whom should be whole and three leprous. St. Leonard's, at Lancaster, also provided for nine poor persons, three of whom might be leprous." The conclusion is that leprosy has died out in spite of the existence of the worst possible hygienic conditions, and in the absence of any effectual system of isolation; and Dr. Newman therefore proceeds to search for some other condition which can be accepted as the essential requirement for the growth and spread of leprosy, and the elimination of which can furnish an explanation of its decline in those countries which have been fortunate enough to rid themselves of the plague.

This special condition Dr. Newman believes is to be found in the habit of fish-eating (especially rancid fish) which, he tries to show, has been and is the great characteristic of all leprous countries. We must confess that this attempt, in the case of China and India, seems to us to be very imperfectly successful; but at the same time it must be remembered that he has upon his side a very powerful authority in Mr. Jonathan Hutchinson. On the other hand this view receives a very distinct negative by several other authorities. Thus, we have already quoted Dr. Ehlers' opinion on the point. Again, Drs. Hansen and Looft, in their treatise, point out that, in the first place, they have never succeeded in cultivating the bacillus, which, "if the bacillus lived as a saprophyte on decaying fish, would be a very simple matter;" secondly, that there are places where decayed fish are often eaten, and yet where there is no leprosy (a not very powerful argument, perhaps); and thirdly, as already mentioned, that there are many leprosy districts where fish is seldom or never eaten. And finally, in Dr. Impey's book, the theory receives but scant courtesy. It would seem, therefore, that the weight of evidence and probability, as well as of authority,

is distinctly against the theory that in the rancid fish often consumed by the population of a leprous country is to be found the means of entrance of the poison, and the explanation of the prevalence of the disease. On the other hand, we must admit that no other theory is forthcoming in its place; and it must therefore be conceded either that the bad hygienic conditions are alone responsible—against which view stands Dr. Newman's argument quoted above—or that the real condition necessary for the endemic existence of leprosy has yet to be discovered.

Putting aside this question, as one which at present seems hardly capable of solution, there remains for consideration the extent to which heredity, infection, and contagion can be held responsible for the continuance and spread of leprosy.

With regard to heredity, the opinion of nearly all authorities is distinctly against its influence. Thus, Dr. Newman dismisses it as clearly incapable of spreading the disease; and in this opinion he is supported by the recently published works of Drs. Hansen and Looft and Dr. Impey. The latter authority, for example, writing in 1895, asserts that there were at that time in the Robben Island Asylum, of which he was lately the Medical Superintendent, 266 leper patients who had been the parents of 951 children, of whom only 23, or less than three per cent., became lepers; and again, that of 520 patients in the asylum, 475 were born of healthy parents. And, although out of 102 leprous patients examined in Iceland by Dr. Ehlers no less than 51 presented a family history of leprosy, this authority is of opinion that the fact must be explained by the influence of contagion rather than by that of heredity—a point which he says would be quite easy of proof were it not for "this confounded period of incubation, the duration of which is utterly unknown."

When we come to examine the question of the contagiousness of leprosy, on the other hand, we find a general agreement of opinion in its favour, although there are two views as to the importance of the part played by it in causing the spread of the disease. Thus, Dr. Newman admits that leprosy is theo-

retically contagious, but altogether denies that it is spread to any extent in that manner; and relies for evidence in support of this opinion on the fact that although, as has been shown, isolation was very imperfectly carried out in early times in England, yet the disease never became at all general, never in fact assuming a greater frequency than 40 per 10,000 of the inhabitants. Again, he quotes the case of Norway at the present time, where the fact that leprosy has on the whole markedly declined has to be taken in connection with the statement that, in 1885, "out of a registered leper population of 1,377, only 522 were in hospital at all—*i.e.*, not nearly half." But it seems to us that the difficulty introduced by these considerations will largely disappear if we admit that leprosy, though directly contagious, yet requires very intimate contact to inoculate the disease. And, indeed, we find that other authorities accept with but little hesitation the fact of contagion as entirely accounting for its continuance and spread. Thus, Drs. Hansen and Looft are strongly of this opinion, and point out, in answer to those who take the imperfect isolation of leper patients in Norway coupled with the decrease of leprosy as a proof of the needlessness of isolation, that it is precisely in those districts in which segregation has been properly carried out that the decrease has occurred, in opposition to those districts in which no such measures have been adopted, and in which the disease has either increased or remained stationary.*

But perhaps the series of cases detailed by Dr. Ehlers from his own personal investigation affords the most positive evidence of the spread of leprosy by contagion in Iceland; in which country as the author maintains, the conditions for strict investigation are peculiarly favourable, owing to the extremely slight extent to which migration of population occurs. We may give two examples in Dr. Ehlers' own words:—(1) The family Einarrsson. Three lepers, two women and one man, "are

* See also a note by Mr. Jonathan Hutchinson in the *Archives of Surgery*, October 1896, in which a rapid increase of leprosy in Bogota, accompanying the grossest laxity in carrying out isolation, is recorded.

sisters and brother, besides one sister of thirty-five not examined; she has been suffering from tuberous leprosy for twelve years. These five children's father, Einar J——, died nine to ten years ago, sixty years old, of L. tuberosa. His sister's daughter was leprous. Besides the above-mentioned five there are, out of eleven sisters and brothers, yet two other healthy sisters alive, who left their home quite early, before the outbreak of the father's illness, one in her second year of life (she has never since visited her parents), the other in her sixth year of life. The five above-mentioned sisters and brothers, who did not break off the connection, have all become lepers." (2) "The family at Moshvol in Rangarvalla. The family at Moshvol consisted of three brothers, one of whom (he seems to have dragged the infection into the family) died last winter of L. mutilans. He was fifty years old, and had been ill for ten years. This brother travelled about twenty-five years ago together with a leprous patient, slept in the same bed as he, and is supposed to have been infected by him. The other brother is suffering from fresh L. tuberosa. The third brother, who lives with a woman (No. 41) aged 34, who has suffered from L. tuberosa for half a year, is not yet affected. The brothers' mother's sister is sixty-seven years of age; she lives at a more distant farm and suffers from L. anæsthetica, which has lasted for forty-five years. For the rest there is no leprosy in the family. . . . . The day after the death of the above-mentioned brother, Dr. Olafr Gudmundsson was sent for to No. 41 (mentioned above) to deliver her (she suffered from narrowness of the pelvis) of the third illegitimate child of the brother who is not leprous. The woman in labour
52 lay on the same bed with the same bedclothes which the leprous corpse had left the day before, and there she was getting ready for the delivery in these very little comfortable surroundings, which was fortunately prevented by the physician. The same winter the woman in labour was attacked by tuberous leprosy." And many other striking pieces of similar evidence are given. Again, Drs. Hansen and Looft mention, among other instances,

the case of a young man, known to themselves, who had become affected one year after he had worn a pair of old drawers given him by a leper; and another in which the same thing had happened to a man who wore several pairs of his leprous father's stockings. Such evidence seems to be conclusive of the fact that leprosy is certainly spread by contagion; and it would seem reasonable to believe, in spite of Dr. Newman's contentions, that this is the manner in which the disease generally becomes disseminated. The infectiousness of leprosy is apparently believed in by none of the authorities.

There are many other interesting points dealt with in the book which has formed the basis of this Periscope. Thus, Dr. Impey gives a detailed account of the undoubted extension of the disease in South Africa, and contributes an interesting argument in favour of the view that leprosy is, under certain conditions, capable of a spontaneous cure, though not before lasting disfiguration and often mutilation has occurred. With these, however, we are not now concerned, and reference must be made to the book itself for further information on the points.

REPORTS OF SOCIETIES.

British Medical Association.

Birmingham and Midland Counties Branch.

Thursday, October 8th, 1896, the President, Mr. M. A. Messiter, in the chair. Present, forty-six members.

Dr. Septimus Bodger, of Studley, was elected a member of the Branch.

A resolution was unanimously passed congratulating Dr. Saundby on his appointment to the Presidency of the Council of the Association.

Mr. Jordan Lloyd showed an enormous Renal Calculus and

many smaller ones removed during life from a man aged forty-one years, which had given rise to painful symptoms only during the last few months, and which was not suspected at the time of operation, the case being regarded as one of Renal Cancer. The stones weighed more than 15½ ounces and were larger than any of which Mr. Lloyd could find record.

Excision of the Sigmoid Flexure for Carcinoma:—Mr. Barling showed this specimen from a man aged 39, who had suffered from constipation and from occasional pain in the left iliac region since the beginning of 1896 and from loss of weight also. In July a swelling was felt in the left iliac fossa, but with the administration of purgatives and enemata this disappeared, and even under an anæsthetic and bimanually no tumor could be felt. The patient was lost sight of until the beginning of October, when he returned with a large mass in the sigmoid region. With difficulty this was excised, together with some glands in the mesentery and adherent omentum. Both ends of the intestine were brought out of the wound with a Paull's glass tube in each The patient is making a good recovery.

Dr. Foxwell showed the brain of a girl of 20 containing a caseous nodule in the right optic thalamus, of the size of a filbert, and which pressed forward the posterior portion of the internal capsule. There was also considerable basal meningitis, which did not appear to be tubercular. The symptoms exhibited during life were (1) sudden onset of complete left homonymous hemianopsia occurring three months prior to death, and persisting without diminution; (2) hemiplegia paræsthesia, involving the whole of the left side including the face, which arose, also suddenly, two days after the hemianopsia, but had since undergone considerable diminution; (3) some muscular weakness of the left side; (4) headache, but no vomiting nor optic neuritis; (5) during the last three weeks symptoms of basal meningitis. This was an instance of cerebral tumour where the localisation of the lesion was a matter of certainty—viz., at the crossing of the tracts of fibres responsible for the hemianopsia with the tracts whose disturbance caused the paræsthesia and slight motor weakness.

Dr. T. Stacey Wilson read a paper on "Otitis Media in Pneumonia."

Mr. E. Luke Freer read a paper on "Operatic Measures in Orthopædic Surgery," and showed patients, instruments, and photographs illustrating it.

The second ordinary meeting was held on Thursday, November 12th, 1896, the President, Mr. M. A. MESSITER, being in the chair. Sixty-eight members were present.

Dr. A. H. Carter was elected a representative of the Branch in the Council of the Association.

Dr. Simon and Dr. Douglas Stanley read a paper on "Acute Pancreatitis."

Mr. Lucas showed a specimen of sarcoma of cæcum that he had successfully removed.

Mr. Lawson Tait showed a new pattern of perinæum scissors, which he thought as perfect for its purpose as any piece of mechanism could be. Not only were the penetrating points perfect in form, but the cutting edges were kept in apposition by a spring which formed the closure of the joint. This beautiful contrivance he understood to be the invention of a Frenchman, but he did not know his name. It was a great advantage in cases upon which unsuccessful operations had been previously performed; and as Mr. Tait found that a number of them were cropping up in his practice from distant parts of the world, he valued the scissors highly. They were made, under Mr. Tait's direction, by Messrs. Down Bros., of the Borough.

Mr. T. Vincent Jackson showed a ball shaped calculus, weighing 330 grains (not composed of oxalate of lime), successfully removed from the bladder of a man, aged 69, by supra-pubic lithotomy, who was also suffering from severe urethral stricture, and for which external urethrotomy and internal urethral division had on different occasions been performed by other surgeons.

Mr. Jordan Lloyd showed a tumour removed from the bladder of a man, aged 35 years, by supra-pubic cystotomy. The growth was a villous papilloma as large as a medium-sized grape, and had given rise, at long intervals during more than two years, to paroxysmal, profuse, painless hæmaturia. The tumour was attached to the right side of the base of the bladder, was pedunculated, and was cut away with scissors. The man had made a good recovery.

PATHOLOGICAL AND CLINICAL SECTION.

The first meeting was held in the Medical Institute on Friday, October 30th, at 8 p.m., Dr. C. W. SUCKLING in the chair.

Chronic Urticaria.—Dr. Leslie Phillips showed a woman who had suffered from this disorder for fifteen years. It occurred only when the skin was heated by work or exercise.

Follicular Syphilide.—Dr. Leslie Phillips presented a man with large follicular syphilide symmetrically placed on buttocks. The papules were grouped and in various stages, from the mature lesion to a pigment-stained pit, indicating the evolution of the rash in crops. The chancre occurred seven months ago, and the present was the first exanthem. He had had no other rash and no angina.

Dermatitis Herpetiformis,—Dr. Leslie Phillips showed a young woman with this disease of many years' standing.

Pachymeningitis Cervicalis Hypertrophica.—Dr. W. A. Marris showed a patient with the following clinical history :—

M. R., a charwoman, 52 years of age, was admitted into the General Hospital under Dr. Simon for paralysis and pain in the arms. The patient had always had good health before the present illness, and had borne three healthy children. There was no evidence to suggest syphilis. Four years ago she first felt pain in her back which spread gradually, first to the right hand and then the left. Eighteen months ago she gradually lost the use of her right hand, and six months later of the left also.

Both pain and weakness in the arms are still increasing. At the present time the pains in the back of the neck and down both arms are severe and constant. There is slight numbness in the fingers and some tenderness when the arms are grasped, but this is not increased over the nerve trunks. Sensation to touch, pain, and temperature is normal. All power of extension is lost in the fingers and wrists, so that complete double wrist-drop is most marked. A slight flexion of the third and fourth fingers is still possible in the left hand. The small muscles of the hands are useless and wasted, as are the forearm muscles. Movements at the shoulder and elbow joints are much weakened. There is no paralysis and no affection of sensation in the legs. The knee-jerks are increased but not excessive, and ankle clonus is absent. Examination of the neck shows undue thickness of the seventh cervical spine, but no limitation of flexion or extension. The Röntgen rays, used with the fluorescent screen, failed to show the exact condition of the cervical canal.

Thalamic Lesions.—Dr. Douglas Stanley read a note on "Thalamic Lesions," drawing attention to the structure and connections of the optic thalamus. Some recent experimental work on the functions of the thalamus points to its being concerned in the regulation of temperature, but owing to the difficulty of producing isolated lesions, the exact influence on temperature has not been defined. An illustrative specimen was shown.

Renal Calculus.—Mr. Jordan Lloyd showed a stone of great size which he had removed by nephrectomy.

Heart with Aortic Disease.—Dr. Foxwell showed a heart, the aortic valves of which were very completely stenosed, rigid, and calcareous, the orifice admitting only a very small sound. The left ventricle was greatly hypertrophied, the right also being so in a slight degree. The aorta was quite free from disease. During life the signs were rough systolic murmurs, heard over circles of three inches diameter, with centres at the apex beat and second right space. The want of conduction into the vessels of the neck was probably due to the smallness of the

blood stream, owing to the extreme stenosis. There was marked pulsation in the intra-clavicular notch, and some slight deficiency of resonance over the manubrium: these two signs and the almost constant anginous pain led to the diagnosis of an aorta dilated owing to calcareous degeneration, which had also involved the aortic valves. Other important symptoms were a persistently small pulse, and dyspnœa on the smallest exertion. Dr. Foxwell commented on the rarity of aortic stenosis existing apart from either aortic regurgitation or degeneration of the aorta The drug which gave the greatest relief was nitroglycerin. The condition was evidently such as could not be relieved by cardiac tonics.

Heart with Aortic Disease.—Dr. Stanley showed the heart from a case of endocarditis in which during life an aortic diastolic and a mid-diastolic murmur were heard. On *post mortem* examination, the mitral valve was healthy, but the aortic valve, which had only two cusps, showed a large patch of vegetations.

Myoma of Fallopian Tube.—Mr. John W. Taylor showed a specimen of myoma of the Fallopian tube. The myoma was developed in the muscular coat and arranged in concentric layers around the mucous membrane so that it could not be enucleated. The fimbriated end of the tube was occluded and the lumen of the tube in the centre of the growth was much dilated, containing a collection of dark fluid blood—presumably of menstrual origin. The patient from whom the tumour was removed was 36 years of age and had been nine times pregnant. She had been suffering for upwards of twelve months with some dysmenorrhœal pain and vomiting which had incapacitated her for work.

Midland Medical Society.

The Annual Meeting of this Society was held on October 14th. Dr. Alfred H. Carter was elected President, Mr Garner was re-elected Treasurer, and Mr. George Heaton and Dr. Kauffmann were re-elected Secretaries.

The Inaugural Meeting was held on October 29th, in the Grand Hotel, Birmingham, when Sir William H. Broadbent, Bart., M.D., delivered the Annual Address, taking as his subject "Clinical Obiter Dicta." The Lecturer dealt with various problems of diagnosis and of treatment which present themselves in the course of practice, and gave form to thoughts which must have floated uncrystallized from time to time in the minds of many of his listeners.

A vote of thanks, moved by Sir Willoughby Wade, seconded by Mr. Alfred Freer, and carried by acclamation, ended the proceedings.

About 120 members of the Society and visitors were present.

The ordinary meeting was held on November 11th, the President, Dr. Alfred H. Carter, being in the chair.

Mr. L. P. Gamgee showed a patient on whom he had operated for slipped peronei tendons. The tendons had been displaced forwards from their groove for sixteen years, causing frequent giving way of the ankle. An incision was made over the malleolus, and a flap of fibrous tissue and periosteum raised from the fibula. The tendons were then held backwards, and the flap stitched back over them with silk sutures. The limb was kept fixed in a plaster case for two months. For the last four months the patient had been following his ordinary occupation with no return of his old symptoms, the tendons being held firmly backwards in their proper position.

Dr. Purslow showed a uterus removed by vaginal hysterectomy. The patient had suffered from persistent metrorrhagia for six months, which had resisted all other methods of treat-

ment and was threatening life. The uterine walls were found to be greatly softened throughout, apparently as the result of prolonged metritis. The patient made a good recovery.

Mr. Lawson Tait then read a paper on "Cleansing and Cleanliness in Abdominal Surgery."

British Orthopædic Society.

An ordinary meeting of the society was held on October 10th at the National Orthopædic Hospital, London, Mr. T. Horrocks Openshaw in the chair.

Messrs. Noble Smith and Chisholm Williams showed two cases of double displacement of the hip. In one case the displacement was dorso-posterior on the right side and dorso-anterior on the left side; in the other case the displacement was upwards on both sides. There was considerable free movement of the heads of the bones in their false sockets, but on drawing the femur downwards, there was found a distinct bony obstruction which prevented the head reaching its natural position. These cases were thought to be due to injury at birth, and thus were not truly congenital. There had been a breech presentation, great difficulty in delivery, very prolonged parturition, and instruments had been used. Skiagrams of these cases were also exhibited.

Mr. Tubby showed skiagrams of a case of double congenital displacement of the hip, the displacement being dorsal on the right side and anterior on the left; and he referred to Mr. Noble Smith's remark that Lorenz had found retraction or contraction of the muscles attached to the great trochanter, and pointed out that Hoffa distinctly stated the contrary. He imagined that the real truth lay between the two statements; that in some cases there was, and in others there was not, contraction of those muscles.

Mr. D'Arcy Power asked what Mr. Noble Smith's experience was in connection with these cases of congenital dislocation,

more particularly as to the question whether they were truly congenital, or traumatic and produced at birth.

Mr. Keetley drew attention to Ogston's operation, which he considered to be more scientifically conceived than those done by the foreign surgeons. He drew attention to the difficulty of diagnosing paralytic and pathological dislocations, especially after typhoid fever, from so-called congenital dislocations. He strongly advocated a formation of a series of records by which such cases might be followed up.

Mr. William Thomas disbelieved that any surgical procedure could ameliorate this condition. A great many of the patients walked fairly well.

Mr. Openshaw stated that in his experience the head of the bone was not deformed until after the fourth year. In six cases on which he had operated he had found the acetabulum triangular and about one-third of an inch in depth. In none was it filled up. The obstruction to reposition was due to a thickening of the posterior and upper edge of the cavity and of the cotyloid ligament; and his experience was that in no case after three years of age was it possible to get the heads of the bones into the acetabulum by digital manipulation. He had himself deepened the acetabulum six times and in no single case had he perforated the base. In only one of these six had the head of the bone slipped out of the acetabulum after it had been so deepened.

Mr. Ewens showed casts of a case of tarsectomy both before and after operation.

Mr. Muirhead Little showed skiagrams of an aggravated case of congenital club-foot, two of hallux flexus, and one of congenital absence of the radius.

Mr. William Thomas made some remarks on the early diagnosis of disease of the spinal column; but as the hour was somewhat late, it was decided to ask Mr. Thomas to present the matter in the form of a paper, which should serve as a basis for discussion at the next meeting.

The proceedings then terminated.

REVIEWS.

A MANUAL OF INFECTIOUS DISEASES.*

THE excellent work done by Drs. Goodall and Washbourn, more especially in connection with the pathology and bacteriology of the specific fevers, would naturally lead us to expect much from a Manual of Infectious Diseases under their combined authorship. This expectation has certainly not been disappointed. A treatise written by a physician who has had special opportunities of studying these diseases has, indeed, long been needed, for the accounts of them in the text-books—except of such as typhoid fever, for example, which come constantly under the notice of the general physician—are often somewhat meagre and unsatisfactory; and now that attendance at fever hospitals has become a compulsory part of medical education, such a book is especially required. The present volume will admirably serve as a student's handbook, for it is not too long; whilst it will also well repay study by those who are older and more experienced.

The first chapter in the book is unfortunately its weakest part, and gave us for the moment a somewhat disappointing impression, for it affords but very slight treatment of an extremely difficult subject. Thus, the three pages devoted to the consideration of the "Theory of Fever," with its bare acceptance of Liebermeister's theory as to the setting of the heat regulation mechanism at a "higher level" than in health, seems to us both unnecessary and inadequate, for the subject bristles with difficulties, and can unfortunately be dismissed in no

*A Manual of Infectious Diseases. By E W. Goodall, M.D. Lond., Medical Superintendent of the Eastern Hospital of the Metropolitan Asylums Board, formerly Medical Registrar to Guy's Hospital; and J. W. Washbourn, M.D. Lond., F.R.C.P., Physician to the London Fever Hospital, Assistant Physician to Guy's Hospital, and Lecturer in the Medical School. London: H. K. Lewis. 1896.

such easy fashion. Nor does it seem to us that the treatment of fever receives that full and careful consideration which is characteristic of almost all the other sections on treatment in the book. But this unfortunate impression is at once dispelled on further acquaintance with its contents. The four chapters which immediately follow, on Contagion and Infection, Disinfection, Rashes simulating those of the Specific Fevers, and Sore Throat, respectively, though short, are able abstracts of their subjects. With the chapter on Scarlet Fever the important part of the work begins, and this is undoubtedly one of the best of the numerous excellent descriptions of the specific fevers which follow. The very useful plan has been adopted throughout the book of giving diagrammatic representations of the distribution of the several rashes, including at times the principal variations which may be met with in the more unusual cases. Thus, in the chapter on scarlet fever, a very graphic representation is given not only of the body as usually affected with the eruption, but also of those rarer cases in which the ordinary punctate erythema on the trunk is associated with a blotchy appearance on the extremities. Other varieties of the rash, though not figured, are described in the very clear language which is to be noticed throughout the book. The treatment of this disease is also especially fully considered, as is its diagnosis from other conditions—another feature of the work to which special attention has throughout been devoted.

As would be expected from the previous work of the authors, the chapter on diphtheria is very good. We need hardly say that the antitoxin treatment receives their full support; and, indeed, a short appendix is devoted to the subject. This appendix contains a short abstract of the statistics recently published in the Report of the Medical Superintendents of the Metropolitan Asylums Board; but we note that no hint is given of any difference of opinion as to the degree of reliance which is to be placed on the bare statistics of this method of treatment—a course which hardly seems to us to be at present fully justified.

Of the chapters which remain, those on measles, small-pox, and typhoid fever are the most important, and contain very excellent accounts of their subjects. The section on the treatment of typhoid fever, however, would undoubtedly gain by further expansion. We especially note that the only mention of the cold bath treatment of this disease consists in a reference to the first chapter in the book. Referring to this chapter, we find the administration of cold baths in cases of fever in general described in a very short paragraph, without any special reference to their application to cases of typhoid fever; whilst a previous sentence asserts baldly that "to adopt a systematic antipyretic treatment (of fever) does not appear to be of any advantage, and it may even do harm." We cannot help thinking that this is rather an unjustly meagre treatment of a therapeutic measure which has received great attention in relation to typhoid fever, which is believed by many physicians to be of great service in that disease, and the advantages of which are at least as fully supported by the published statistics as are those of the antitoxin treatment of diphtheria, on which the authors place full reliance.

We have omitted to mention the very excellent sections on the bacteriology of those specific fevers which are known to be caused by the invasion of a micro-organism; which sections also contain the reproduction of many photographs. The book is altogether one of unusual excellence.

LA THÉRAPEUTIQUE DES TISSUS.*

THE development of the system of treating disease by extracts of tissues has been so extraordinary and rapid that we are in some danger of forgetting the steps which led to its introduction. In this work the author takes us back to the earliest ideas and experiments on the subject, and, in a short but graphic review

* La Thérapeutique des Tissus (Tissue Therapeutics). By M. Bra. Paris: J. Rothschild.

of Brown-Séquard's work, he raises a keen interest not only in the history of one of the most unexpected departures in medicine, but in its great possibilities. As might be expected, the historical portion is mostly an account of Brown-Séquard's experiments and investigations as the pioneer of tissue therapeusis; and the author has given almost in full his memorable communication to the Société de Biologie on June 1st, 1889. No better introduction could be written to a work on tissue therapeutics than the account in his own words of the steps which led the great physiologist to formulate the whole theory of internal secretion.

The first chapter gives a general view of the organic liquid extracts in general, their mode of administration, preparation, and the best means of preserving them in a condition fit and safe for use.

The first substance to be considered at length is naturally Testicular Extract, and its effect on the nervous system, muscular energy, nutrition, and temperature. In all instances actual experiments and observations are fully quoted.

The next part deals with "Grey Matter," as studied by Constantin Paul, and from the account given we would seem to have in this substance a very important means of treating neurasthenia in its many forms; and Paul states that in 53 cases he only failed to obtain good results in 7.

It is unnecessary to say that the chapter on the Thyroid Gland forms the greater and most important part of the work, and includes a full account of the many conditions in which thyroid extract has been found effective. Thus, myxœdema, cretinism, dermatoses, acromegaly, and obesity are given in detail, and experiments and observations are given in illustration. The many interesting details given in this chapter are becoming so well known that it is needless to give them even in epitome.

Perhaps the two chapters dealing with "Pancreatic" and "Suprarenal" secretion are the most interesting. The former gives the various results obtained by Minkowski, Hédon, Gley,

and Thiroloix in experimenting on the pancreas by excision, grafting, etc., and the different theories as to the relation of pancreatic disease to glycosuria and diabetes are clearly given. When, however, the question of pancreatic medication is reviewed, the author admits that it has been disappointing.

The chapter on the suprarenals likewise passes in review the brilliant experimental work of Charrin, Abelous, Langlois, and others, and which has gone far to elucidate the physiology of this obscure subject and adrenal pathology. Several cases are quoted showing decided effects produced by injecting suprarenal extract. There are portions of the work which however call for some criticism, in that they show too great a tendency to use extracts of tissues in the treatment of disease of those tissues in man, without the same logical basis on which the use of thyroid and suprarenal extract is founded, thus losing sight of the fundamental point in the whole matter—that of internal secretion. Consequently, when we read of "Cardiac" and "Lung Extract," we begin to feel that the subject is being pushed to an extreme.

Notwithstanding these points, we do not hesitate to say that M. Bra's book is one of great interest, not only for the information with which it abounds, but also as a history of the manner in which certain important discoveries in physiology have been applied to practical therapeutics.

ABDOMINAL SURGERY.*

THE fact that this book has reached its fifth edition in nine years is an emphatic testimony to the value placed upon it by the medical profession. This being so, little need be said of its merits here were it not that the present edition is the first that has required expansion into two volumes. As each of these is as large as the single volume of 1887, it is evident at once that

* Abdominal Surgery. By J. Greig Smith, M.A., F.R.S.E. Fifth edition, in 2 vols. London: J. and A. Churchill, 1896.

the author has assiduously endeavoured to keep his book abreast with the enormous advances of abdominal surgery, and in this assuredly he has not failed. The amount of material and the, to a very great extent, uncontroversial nature of the work make it impossible and undesirable to give a detailed criticism of these volumes within the limits of such a notice as this. The gist of the whole matter lies in a few sentences of the preface. "It is a significant fact that the space given to appendicitis compares with that given to ovariotomy, and that to the surgery of the intestines more space is devoted than to the whole surgery of the ovaries. It simply means that fuller knowledge is bringing the various departments of abdominal surgery into their natural proportions, and that we are able to present a subject with a fulness in some measure correspond ing to its importance." In the present issue, part of the increase in bulk is due to the addition of subjects not hitherto included, as for instance the surgery of the ureters, on subphrenic abscess, etc., and part to the larger space occupied by subjects re-written, of which there are several. On many of the topics dealt with controversy has practically died away. On others, there are many and somewhat discordant expressions of opinion. We can speak highly of Mr. Smith's treatment of all his subjects, but it is especially in the latter class that he is to be praised. Always judicious in selecting from the mass of material which has come into existence in the past few years, he yet manages to impress his individuality upon the subject he is treating of. As a notable example of this we may mention the article on intestinal surgery, in which his discussion of methods and of the details of operation is especially admirable, whilst at the same time he is quite pronounced as to the value of his own procedures.

Another charm of his book is the ready acknowledgment of the work of others in a field of surgery which has not been remarkable for the mutual courtesies of those who have contended therein.

We can commend the present edition both to those who have and to those who have not the former ones, and we congratulate the author on its production.

THE DIAGNOSIS AND TREATMENT OF DISEASES OF THE RECTUM.*

THE fact of this work having entered upon a sixth edition is a proof of its value and of its appreciation by the profession. Indeed the previous editions are so well known that any detailed criticism is unnecessary. In the preface the authors draw attention to an essential point when they say it is "an endeavour to teach practically how to treat diseases of the rectum." As this can only be successfully practised when a sound diagnosis has been made, and as this in its turn depends upon a careful examination, we find that these points have been clearly discussed, and that therefore the practical value of the book has been ensured. The authors have tried the method of treating fistula by excision of the edges of the sinus and suture of the wound, but after considerable experience they have given it up "on account of its failure to cure and its unsatisfactory after-results." With regard to the treatment of fistula in phthisis they say: "In acute phthisis, in which the fistula causes great suffering, one should adopt only palliative or mild operative measures, the latter being directed to the relief of pain." "In fistula associated with chronic phthisis an attempt may be made under favourable circumstances to effect a cure." "In what we have described as a strumous fistula, an operation should be performed in order to remove a possible source of general disease."

The various methods of treating piles are fully discussed, and that by ligature is held to be superior to all. Whitehead's method is severely criticised, and "though theoretically it is perfect, yet in practice it is unnecessary, and one of the worst operations for piles." The clamp and cautery meet with no support, and crushing is considered a more satisfactory method though it is only applicable to certain cases.

* The Diagnosis and Treatment of Diseases of the Rectum. By William Allingham, F.R.C.S., and Herbert W. Allingham, F.R.C.S. Sixth Edition. London: Baillière, Tindall and Cox. 1896.

The chapters on Cancer of the Rectum and on the various forms of Colotomy are good and full of valuable information derived from the experience of a large number of cases. The present edition has fully maintained the high reputation of the work.

PRACTICAL AND OPERATIVE GYNÆCOLOGY.*

We have read this little book with pleasure and with profit, and can recommend it to the notice of medical students and practitioners. It is essentially the work of a teacher, and the greater part of it is therefore compiled from the writings of other writers on this branch of surgery.

The author divides his subject into three parts, under the headings of "Caretaking," "Minor Therapeutic Measures," and "Operative Measures." The section devoted to "Caretaking" is comprehensive and practical, and it would be to the advantage of every young practitioner—and, indeed, to many of his seniors also—if he would read it and keep its precepts carefully before him when called in to investigate intra-pelvic disease in his patients. A portion of this section is devoted especially to the commoner instruments used in gynæcological examinations, and to the right manner of using them.

Among "Minor Therapeutical Measures" are included such matters as plugging and douching the vagina and uterus, the use and application of pessaries, electricity, anæsthesia, antiseptics, and the use of minor instruments. We think much of this section is rather "general" than "special," and might be very well left to the ordinary text-books of surgery.

The last part of the volume, on "Operative Measures," is particularly good. The descriptive text is clear, concise, and

* Practical and Operative Gynæcology. By J. Clarence Webster, M.D., F.R.C.P. Ed., formerly Assistant to the Professor of Midwifery and Diseases of Women, University of Edinburgh. Illustrated. Edinburgh and London: Young J. Pentland. 1896.

easily understandable; and the illustrations are well chosen, well drawn, and "to the point."

The name of the publisher is sufficient guarantee of the manner in which the volume is issued.

ROYAL INFIRMARY CLINIQUES.*

DR. JAMES has published in this volume sixteen clinical lectures delivered in the Royal Infirmary, Edinburgh. They are addressed to the students attending his clinical class, who presumably have had the opportunity of seeing all the patients described.

Published clinical lectures are of two main kinds. One produces a graphic picture of the patient and his ailment by carefully emphasising the important points in the case and omitting irrelevant matter; the other relates a more or less complete and elaborate description of the case, giving all details an equal prominence. The former are interesting to read whether the patient has been seen or not, and carry conviction; the latter require very careful attention unless the patient is known, and although they may be accurate they are inclined to be prosy and unconvincing. The lectures before us belong to the second type, and to a public outside the Infirmary they would have been much easier to follow if more light and shade had been introduced. Some of them fail to produce a mental picture of the case at the first reading. For this particular kind of lecture, however, they are very good, and we may especially mention those headed "Pulsating empyema." "A case of renal and cardiac disease," and "A case of spinal injury."

We are sorry to see that the method of case-taking still extant in Edinburgh teaches the student to commence his description of the patient with the family history.

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*Royal Infirmary Cliniques. By Alexander James, M.D., F.R.C.P.E. Edinburgh: Oliver and Boyd. 1896.

A TEXT-BOOK FOR TRAINING SCHOOLS FOR NURSES.*

THIS is, perhaps, almost a better book from the point of view of a lecturer to nurses than from that of the nurses themselves; though this remark applies only to the first of the two volumes. This volume is devoted exclusively to the subjects of anatomy and physiology, with the exception of four chapters on Disinfection, Beds and Bed-making, and Observations and Recording of Symptoms, respectively. And although the account given is very plainly and easily written, we must admit that it appears to us to contain much beyond what it is necessary for a nurse to know on these subjects, and possibly beyond what it is advisable to put before her. We have some doubt as to the advantage to a nurse of possessing an acquaintance with more than an outline of anatomy and physiology, especially as she has no means of recognising how extremely meagre any such acquaintance which she is likely to attain to must necessarily be; nor can we at all see the practical usefulness of more than such an outline to her. In this book, however, a considerable amount of detail is entered into; and for that reason we should hesitate to recommend it to the notice of nurses as unreservedly as we should otherwise be inclined to do.

The second volume is extremely good and practical throughout, touching no more than is necessary on purely medical questions, yet giving enough information as to their nature to make the reason for the various instructions easy to understand; and we can safely recommend it both to lecturers and nurses as containing many hints which will prove most useful for whichever purpose it is consulted.

---

*A Text-Book for Training Schools for Nurses. By P. M. Wise, M.D., Medical Superintendent, St. Lawrence State Hospital. With an Introduction by Dr. Edward Cowles, Physician-in-Chief and Superintendent of the McLean Hospital, Boston, Mass. In two volumes. New York and London: G. P. Putnam's Sons. 1896.

THE SKULL OF THE DOG.*

THE object with which this book has been written is the provision of a concise and accurate account of the structure of a mammalian skull for the use of students of comparative anatomy and osteology; and for this purpose the skull of the dog has been chosen, as being both typical and easily obtainable. Mr. Collinge is to be congratulated upon the manner in which he has carried out his intention, for the account given is certainly concise, and we believe absolutely accurate. It is, moreover, excellently illustrated; and we may especially call attention to the drawings of sections of the skull at different levels and in different planes.

The last part of the book is taken up by tables giving the chief cranial and dental characters of different breeds of dogs, for the reproduction of which the author expresses his indebtedness to Professor Windle.

Finally, we must not omit to notice that the book contains a short glossary of osteological terms.

A HANDBOOK OF SURFACE ANATOMY AND LANDMARKS.†

THIS edition admirably fulfils the objects for which the work was originally written, viz., "as a guide for anatomical students in their first and second years, to that important portion of the knowledge of the human body which can be gained without the use of the scalpel and forceps." The whole book has been

* The Skull of the Dog: a Manual for Students, with a Glossary of Osteological Terms. By Walter E. Collinge, F.Z.S., Assistant Lecturer and Demonstrator in Zoology and Comparative Anatomy, Mason College, Birmingham. London: Dulau and Co. Birmingham: Cornish Brothers. 1896.

† A Handbook of Surface Anatomy and Landmarks. By Bertram C. A. Windle, D.Sc., M.D., M.A. Dubl.; Revised and Enlarged in collaboration with T. Manners-Smith, M.A. Cantab., M.R.C.S. Second edition. London: H. K. Lewis. 1896.

carefully revised and several coloured plates have been introduced showing the relative position of some of the more important viscera. The relations of the brain to the cranium have been amplified so as to mark the growing importance of this part of surface anatomy. Those students who take the trouble to carefully read this book by the side of the cadaver, either in the dissecting or *post mortem* room, will find that they have acquired a knowledge of the subject that will be of permanent value to them.

HAND-BOOK OF DISEASES OF THE EAR.*

THE author has well managed, in a volume of 260 pages, to compress all the information and guidance which a practitioner will require on this subject. The work is a deservedly popular one, the demand for which is evidenced by the publication of this the third edition. This edition will be found an improvement on the previous ones, for the author has added a great deal of new matter and has elaborated several chapters, particularly those treating of mastoid troubles, the operation for the removal of adenoid vegetations, and also the details of the operation for the removal of the ossides, all of which have been carefully written and kept up to date. We can confidently recommend this little work as affording an excellent text-book and a safe guide to the practitioner. The appendix, containing formula, will be found most useful and reliable for ready reference.

NOTE.

We have received from the Reviewer of Dr. Foxwell's book on the Enlarged Cirrhotic Liver a reply to the letter from Dr. Foxwell which appeared in our last number. This reply, which was received too late for immediate publication, will be included in the January number.

* Hand-book of Diseases of the Ear, for the Use of Students and Practitioners. By Urban Pritchard, M.D., F.R.C.S. London: H. K. Lewis.

PUBLISHERS' DEPARTMENT.

New Inventions, Drugs, etc.

WE have received from Messrs. Thomas Christy & Co. two specimens of Filmogen, a new medium for the application of drugs to the skin, one of which contains ten per cent. of salicylic acid. The special point about this preparation is that, when painted on the skin, it forms a thin, quickly drying film, which is not easily removed either by friction or by washing. It should prove very useful in the treatment of skin diseases.

New Books, etc., Received.

A Text-book for Training Schools for Nurses. By P. M. WISE, M.D., Medical Superintendent, St Lawrence State Hospital, Professor of Psychiatry, University of Vermont. With an Introduction by Dr. EDWARD COWLES, Physician-in-Chief and Superintendent of the McLean Hospital, Boston, Mass. In Two Volumes. London and New York : G. P. Putnam's Sons. 1896.

A System of Gynæcology. By Many Writers. Edited by THOMAS CLIFFORD ALLBUTT, M.A., LL.D., F.R.C.P., F.R.S., F.L.S., F.S.A., Regius Professor of Physic in the University of Cambridge; and W. S. PLAYFAIR, M.D., LL.D. F.R.C.P., Professor of Obstetric Medicine in King's College, and Obstetric Physician to King's College Hospital. London : Macmillan and Co. Limited. 1896.

A Text-book of Special Pathological Anatomy. By ERNST ZIEGLER, Professor of Pathology in the University of Freiburg. Translated and Edited from the Eighth German Edition by DONALD MACALISTER, M.A., M.D., Linacre Lecturer of Physic, and Tutor of St. John's College, Cambridge; and HENRY W. CATTELL, M.A., M.D., Demonstrator of Morbid Anatomy in the University of Pennsylvania. Sections i. to viii. New York : The Macmillan Company. London : Macmillan and Co. Limited. 1896.

The Treatment of Tuberculosis and other Infectious Diseases with Oxytoxines—Provisional Report. By J. O. HIRSCHFELDER, M.D., Professor of Clinical Medicine, Cooper Medical College, San Francisco, Cal.

Medicine and Kindred Arts in the Plays of Shakespeare. By Dr. JOHN MOYES, Fellow of the Faculty of Physicians and Surgeons of Glasgow. Glasgow : James Maclehose and Sons. 1896.

The Education of the Central Nervous System. A Study of Foundations, especially of Sensory and Motor Training. By REUBEN POST HALLECK, M.A.. (Yale). New York : The Macmillan Company. 1896.

An American Text-book of Physiology. Edited by WILLIAM H. HOWELL, Ph.D., M.D., Professor of Physiology in the Johns Hopkins University, Baltimore. Philadelphia : W. B. Saunders. 1896.

Electro-Physiology. By W. BIEDERMANN, Professor of Physiology in Jena. Translated by Francis A. Welby. Illustrated. Vol. i. London: Macmillan. 1896.

Lectures on Renal and Urinary Diseases. By ROBERT SAUNDBY, M.D., F.R.C.P , Physician to the General Hospital, Professor of Medicine in the Mason College, Birmingham. Illustrated. Second edition. Bristol: John Wright and Co. London: Simpkin, Marshall, and Co. Limited. 1896.

A Short History of Aryan Medical Science. By Sir BHAGVAT SINH JEE, K.C.I.E., M.D., etc., Makore Sahib of Gondal. Illustrated. London: Macmillan. 1896.

Traitement des Suppurations Pelviennes. Par EUGENE DOYEN. Paris: Institut Internat. de Bibliographie scientifique. 1896.

The Students' Medical Dictionary, based on recent Medical Literature. By GEORGE M. GOULD, A.M., M.D. Tenth edition, re-written and enlarged. London: H. K. Lewis. 1896.

Transactions of the British Balneological and Climatological Society for 1895-6. London : John Bale and Sons. 1896.

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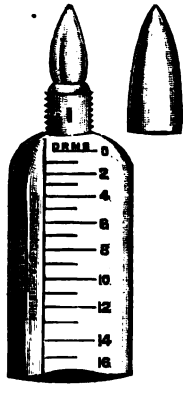

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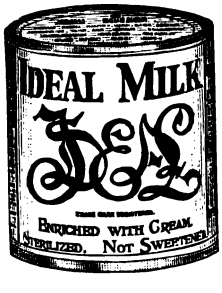

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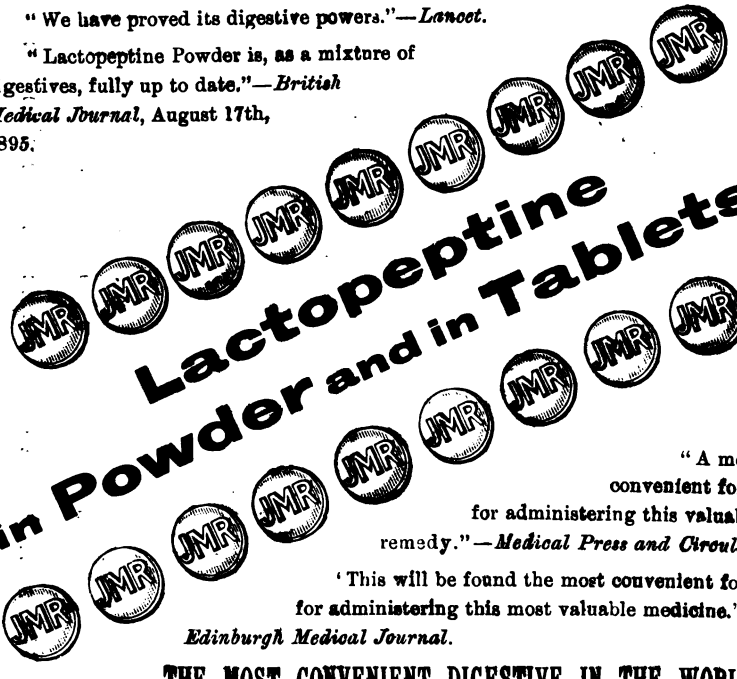

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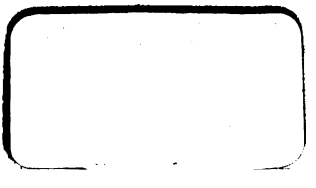

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